JAN 86422

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# SEARCH REQUEST FORM

## Scientific and Technical Information Center

Requester's Full Name: R GLITOMER Examiner # : 69630 Date: 2/11/03

Art Unit: 1651 Phone Number ~~308-0732~~ Serial Number: 09/626,566

Mail Box and Bldg/Room Location: ~~4B01~~ 11B11 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

**********

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

JAN

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Date Searcher Picked Up: 2/11/03

Date Completed: 2/11/03

Searcher Prep & Review Time: K

Clerical Prep Time: _____

Online Time: 60

**Type of Search**

NA Sequence (#) _____

AA Sequence (#) _____

Structure (#) _____

Bibliographic ✓

Litigation _____

Fulltext _____

Patent Family _____

Other _____

**Vendors and cost where applicable**

STN ✓

Dialog _____

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis _____

Sequence Systems _____

WWW/Internet _____

Other (specify) _____

PTO-1590 (8-01)

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FILE 'HCAPLUS' ENTERED AT 15:15:13 ON 16 FEB 2003


FILE COVERS 1907 - 16 Feb 2003 VOL 138 ISS 8
FILE LAST UPDATED: 14 Feb 2003 (20030214/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all tot l61

L61 ANSWER 1 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 2003:20978 HCAPLUS
DN 138:86124
TI Acridinium ester labels having hydrophilic modifiers
IN **Natrajan, Anand; Sharpe, David; Jiang, Qingping**
PA **Bayer** Corporation, USA
SO Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM G01N033-58
ICS G01N033-82
CC 9-14 (Biochemical Methods)
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI EP 1273917 | A2 | 20030108 | EP 2002-13902 | 20020621 |

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRAI US 2001-898381 A 20010703

AB The present invention is generally directed to detectable **chemiluminescent** acridinium ester labels having hydrophilic modifiers; to compns., complexes and/or conjugates which include such labels; and to processes for performing bioanal. assays for target analytes which use such labels. Assays for folate, theophylline, and tobramycin (using such labels with hydrophilic modifiers such as nonionic polyethylene glycol and polyionic spermine disulfonate and polyionic spermine dicarboxylate) are described in detail.

ST acridinium ester label hydrophilic prepn folic acid theophylline **chemiluminescence**
IT Hydrophilicity
Labels
**Luminescence, chemiluminescence**
(acridinium ester labels having hydrophilic modifiers)
IT Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

(acridinium ester labels having hydrophilic modifiers)
IT Onium compounds
RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(acridinium, esters; acridinium ester labels having hydrophilic modifiers)
IT Bond
(covalent; acridinium ester labels having hydrophilic modifiers)
IT 482648-38-4P
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(NSP-DMAE-HD-PTEROATE; acridinium ester labels having hydrophilic modifiers)
IT 194357-76-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(NSP-DMAE-HD; acridinium ester labels having hydrophilic modifiers)
IT 482648-37-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(SPDC; acridinium ester labels having hydrophilic modifiers)
IT 482648-36-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(SPDS; acridinium ester labels having hydrophilic modifiers)
IT 58-55-9, Theophylline, analysis 59-30-3, Folic acid, analysis 32986-56-4, Tobramycin
RL: ANT (Analyte); ANST (Analytical study)
(acridinium ester labels having hydrophilic modifiers)
IT 482648-41-9P
RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(acridinium ester labels having hydrophilic modifiers)
IT 482648-46-4P 482648-48-6P 482648-49-7P 482648-50-0P 482648-51-1P 482648-52-2P 482648-53-3P 482648-54-4P 482648-56-6P 482648-57-7P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(acridinium ester labels having hydrophilic modifiers)
IT 25322-68-3, Polyethylene glycol 194357-64-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(acridinium ester labels having hydrophilic modifiers)
IT 72236-26-1P 109789-40-4P 356046-26-9P 482648-39-5P 482648-44-2P 482648-55-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(acridinium ester labels having hydrophilic modifiers)

L61 ANSWER 2 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 2001:936052 HCAPLUS
DN 136:50658
TI Immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent
IN Aristarkhov, Alexander; Palmer, Michelle A. J.
PA USA
SO U.S. Pat. Appl. Publ., 11 pp., Cont.-on-part of U. S. Ser. No. 540,496, abandoned.
CODEN: USXXCO
DT Patent
LA English
IC ICM C12Q001-68
ICS G01N033-53
NCL 435006000

CC **9-10** (**Biochemical Methods**)
FAN.CNT 2

| | PATENT NO. | KIND | DATE | | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|---|
| PI | US 2001055766 | A1 | 20011227 | | US 2001-802902 | 20010312 | <-- |
| PRAI | US 1999-127480P | P | 19990402 | <-- | | | |
| | US 1999-169618P | P | 19991208 | | | | |
| | US 2000-540496 | B2 | 20000331 | | | | |

AB The present invention relates to a branched bis-biotin/avidin/multiple label **complex** that is conjugated to a member of a specific **binding pair** ("sbp member"). The **complex** and conjugate compns. of the invention find use in an assay for an analyte wherein there is employed a reagent system comprising an avidin reagent and a biotin reagent. The present invention comprises using as the biotin reagent the branched bis-biotin/avidin/multiple label **complex** as described above. Also disclosed are kits comprising the present bis-biotin/avidin/multiple label **complex** and methods of prepg. a bis-biotin/avidin/multiple label **complex** conjugate of a member of a specific **binding pair** ("sbp member") for use in a specific **binding** assay.

ST immunosorbent assay branched biotin avidin label **complex** detection reagent

IT Cell
**Chemiluminescent** substances
Composition
Conjugation (molecular association)
Fluorescent substances
Isotope indicators
Labels
**Light**-sensitive materials
Mixtures
Test kits
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT DNA
RL: ANT (Analyte); ANST (Analytical study)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Antibodies
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Antigens
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Avidins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT **Enzymes**, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Haptens
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Monomers
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Polynucleotides

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Receptors
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT Immunoassay
(immunosorbent assay; immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

IT 58-85-5, Biotin 9013-20-1, Streptavidin 35924-94-8, Bis-biotin
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immunosorbent assay using branched bis-biotin/avidin/multiple label **complex** as a detection reagent)

L61 ANSWER 3 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 2001:598225 HCAPLUS
DN 135:191242
TI Nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio
IN Morello, Ann M.; **Jiang**, **Qingping**; Monahan, John E.; **Law**, **Say-jong**
PA **Bayer** Corp., USA
SO PCT Int. Appl., 61 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-68
CC 3-1 (Biochemical Genetics)
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2001059162 | A2 | 20010816 | WO 2001-US4244 | 20010208 |
| | WO 2001059162 | A3 | 20021205 | | |
| | W: JP | | | | |
| | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR | | | | |
| | US 2002098485 | A1 | 20020725 | US 2001-781106 | 20010208 |
| PRAI | US 2000-180918P | P | 20000208 | | |

AB The present invention allows amplification of a target nucleic acid sequence by employing a quasi-autocatalytic replicase activity, while ensuring fidelity of amplification by use of a method for detecting the presence of the amplified target rather than the amplified replicase replicable sequence. Therefore an object of the invention is to provide a method for assaying a target nucleic acid comprising combining one or more amplification probes with a nucleic acid sample under conditions suitable for hybridization such that the amplification probe, or probes together if more than one probe is used, hybridize to the target sequence. Addnl. detection probes are provided by the invention for detg. the amt. of unhybridized replicase replicable sequence such that the signal to noise ratio (S/N) between the amplified target segments (signal) and amplified unhybridized probe sequence (noise) can be detd. to measure amplification fidelity. Kits for practicing the invention are also provided. Prepn. of longer emission acridinium ester N-hydroxy succinamide (LEAE-NHS) and dimethylacridinium esters (DMAE) detection probes is described. The solid phase capture probe, PMP-MA, was prepd. by immobilizing to paramagnetic particles (PMP) an oligonucleotide capture probe. Detection of LEAE and DMAE **chemiluminescent** emission signal by **dual**

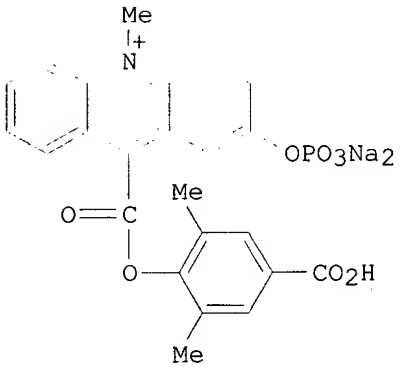
photomultiplier tube (PMT) luminometer is also described.
ST nucleic acid amplification quasi autocatalysis replicase; **chemiluminescence** nucleic acid detection signal noise ratio improvement
IT Onium compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(acridinium, esters; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT Onium compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(acridinium; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT Onium compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(isoquinolinium; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT **Chemiluminescent** substances
**Luminescence, chemiluminescence**
**Luminescent** substances
Nucleic acid amplification (method)
Nucleic acid hybridization
Test kits
(nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT Particles
(paramagnetic, nucleic acid sequence coupled to; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT Onium compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(quinolinium; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT Photomultipliers
(tube, use in **chemiluminescence** detection; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT 521-31-3, Luminol 2315-97-1, Lucigenin 3682-14-2, Isoluminol
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT 9014-24-8, DNA-dependent RNA polymerase 9026-28-2, Q.beta. Replicase
RL: BUU (Biological use, unclassified); CAT (Catalyst use); BIOL (Biological study); USES (Uses)
(nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)
IT 173249-70-2 173249-71-3 355882-51-8 355882-52-9, 4: PN: WO0159162 PAGE: 23 unclaimed DNA 355882-53-0, 5: PN: WO0159162 PAGE: 24 unclaimed DNA
RL: PRP (Properties)
(unclaimed nucleotide sequence; nucleic acid amplification via quasi-autocatalytic replicase and **chemiluminescence** detection for improved signal to noise ratio)

L61 ANSWER 4 OF 23 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:101348 HCAPLUS
DN 134:159459
TI **Chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases
IN **Jiang, Qingping; Natrajan, Anand; Sharpe, David J.; Wong, Wen-jee; Law, Say-jong**
PA **Bayer** Corporation, USA
SO PCT Int. Appl., 156 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-42
ICS C07D219-06
CC 7-1 (**Enzymes**)
Section cross-reference(s): **9**, 27, 28
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI WO 2001009372 | A1 | 20010208 | WO 2000-US20429 | 20000727 <-- |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| EP 1203091 | A1 | 20020508 | EP 2000-950764 | 20000727 <-- |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |
| PRAI US 1999-146648P | P | 19990730 <-- | | |
| WO 2000-US20429 | W | 20000727 | | |

OS MARPAT 134:159459
GI




I

AB **Chemiluminescent substrates** of **hydrolytic enzymes** are disclosed having the general Formula **Lumi-M-P**, where **Lumi** is a **chemiluminescent** moiety capable of producing **light** (a) by itself, (b) with MP attached and (c) with **M** attached, wherein the different properties of **Lumi-M-P** and **Lumi-M** allow them to be distinguished. Lumi includes, but is not limited to, acridinium compds. (e.g. acridinium esters, carboxyamides,

thioesters, and oxime esters), reduced forms thereof (e.g. acridans), and spiroacridan compds. M is selected from oxygen, nitrogen and sulfur. **P** is a group that can be readily removed by **hydrolytic enzymes** to give **Lumi-M** and **P**. The **hydrolytic enzyme** can be phosphatase, glycosidase, peptidase, protease, esterase, sulfatase, and guanidinobenzoatase. Thus, 2-Phos-DMAE (I) is synthesized and shown to be an excellent **substrate** of **hydrolytic** alk. phosphatase to form 2-OH-DMAE. Both I and 2-OH-DMAE are **chemiluminescent**, but emit **light light** at different emission maxima when they are treated with H2O2 in strong alk. soln. I emits a strong, visible blue **light** at .lambda.max 478 nm while 2-OH-DMAE emits a strong, visible orange **light** at .lambda.max 602 nm, thus resulting in a bathochromic shift of emission max. by 128 nm. One of the advantages in using **chemiluminescent** acridinium **substrates** like I to detect **hydrolytic enzymes** is that the products generated by the **enzyme** can be accumulated without undergoing significant decompn. during the **enzymic** reaction. In addn., under certain conditions the **chemiluminescence** from I is selectively and significantly suppressed, and thereby the overall signal differentiation of 2-OH-DMAE over I is improved. A heterogeneous immunoassay is also provided demonstrating I utility as a **substrate** for the **chemiluminescent** detection of TSH in human serum.

ST **hydrolytic enzyme** assay **chemiluminescent** **substrate**; acridinium **chemiluminescent substrate** **hydrolytic enzyme** assay; phosphatase assay **chemiluminescent** acridinium **substrate**

IT Immunoassay
(TSH detection in human serum using acridinium **substrate** of alk. phosphatase; **chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT Onium compounds
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(acridinium; **chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT **Luminescence, chemiluminescence**
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT Onium compounds
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(isoquinolinium; **chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT Onium compounds
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(quinolinium; **chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 9001-78-9 9001-92-7, Proteinase 9013-05-2, Phosphatase 9013-79-0, Esterase 9027-41-2, **Hydrolytic enzymes** 9031-96-3, Peptidase 9032-92-2, Glycosidase 9068-67-1, Sulfatase 84419-03-4, Guanidinobenzoatase
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 324762-34-7P 324762-52-9P 324762-55-2P 324762-58-5P
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 92-81-9DP, Acridan, compds. 229-87-8DP, Phenanthridine, compds. 260-94-6DP, Acridine, compds. 521-31-3DP, Luminol, compds. 2315-97-1DP, Lucigenin, compds. 3682-14-2DP, Isoluminol, compds. 12041-95-1DP, Benzacridine, compds.
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 324762-37-0P 324762-38-1P 324762-42-7P 324762-59-6P
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 324762-35-8P 324762-40-5P 324762-43-8P 324762-44-9P 324762-46-1P 324762-48-3P 324762-49-4P 324762-50-7P 324762-54-1P 324762-56-3P
RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 91-56-5, Isatin 100-39-0, Benzyl bromide 104-92-7, 4-Bromoanisole 106-41-2, 4-Bromophenol 123-31-9, Hydroquinone, reactions 540-38-5, 4-Iodophenol 1633-83-6, 1,4-Butanesultone 3970-21-6, Methoxyethoxymethyl chloride 5336-90-3, Acridine-9-carboxylic acid 6272-38-4, 2-(Benzyloxy)phenol 17789-14-9, 2-(3-Bromophenyl)-1,3-dioxolane 39755-95-8, 5-Methoxyisatin 115853-69-5 151490-52-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 6793-92-6P, 4-Benzyloxybromobenzene 108534-47-0P 112934-63-1P 130266-57-8P, 2-Methoxy-acridine-9-carboxylic acid 161006-15-1P 199190-18-6P 221057-35-8P 221057-36-9P 259169-12-5P 259169-13-6P 259169-43-2P 259169-44-3P 259169-45-4P 324762-60-9P 324762-61-0P 324762-62-1P 324762-63-2P 324762-64-3P 324762-65-4P 324762-66-5P 324762-67-6P 324762-69-8P 324762-70-1P 324762-71-2P 324762-72-3P 324762-74-5P 324762-75-6P 324762-76-7P 324762-77-8P 324762-79-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

IT 9002-71-5, TSH
RL: ANT (Analyte); ANST (Analytical study)
(detection in human serum using acridinium **substrate** of alk. phosphatase; **chemiluminescent substrates** of **hydrolytic enzymes** such as phosphatases)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Akhavan-Tafti, H; US 5772926 A 1998 HCAPLUS
(2) Bayer Ag; WO 0009487 A 2000 HCAPLUS
(3) Corey, P; US 4810636 A 1989 HCAPLUS
(4) Renault, J; EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY - CHIMICA THERAPEUTICA 1981, V16(1), P24 HCAPLUS
(5) Say-Jong, L; US 4745181 A 1988 HCAPLUS
(6) Sotiriou-Leventis, O; US 5656426 A 1997 HCAPLUS

(7) Syntex Inc; WO 9402486 A 1994 HCAPLUS

L61 ANSWER 5 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 2000:368720 HCAPLUS
DN 133:14303
TI Measurement of hydride using **chemiluminescent** acridinium compounds
IN **Sharpe, David; Natrajan, Anand; Jiang, Qingping;** Parsons, George; **Law, Say-jong**
PA **Bayer** Corp., USA
SO PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-58
ICS C12Q001-00; C12Q001-32; C07D219-04; C07D221-12; C07D215-50
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 1, 4, **7**, 27, 79, 80
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2000031543 | A1 | 20000602 | WO 1999-IB1894 | 19991124 <-- |
| | W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| | CA 2319187 | AA | 20000602 | CA 1999-2319187 | 19991124 <-- |
| | BR 9907248 | A | 20001017 | BR 1999-7248 | 19991124 <-- |
| | EP 1049933 | A1 | 20001108 | EP 1999-972738 | 19991124 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| | JP 2002530678 | T2 | 20020917 | JP 2000-584306 | 19991124 <-- |
| PRAI | US 1998-109823P | P | 19981125 <-- | | |
| | WO 1999-IB1894 | W | 19991124 | | |

OS MARPAT 133:14303
AB The present invention discloses a method for the measurement of hydride using a **chemiluminescent** compd., such as an acridinium compd. The source of hydride for the redn. of acridinium compd. may be of chem. or biochem. origin, or the result of **enzymic** catalysis. The chem. source of hydride, might be NaBH4. A biochem. source of hydride might be that derived from NADH, or NADPH, while an **enzymic** source would be the class of oxidoreductases termed dehydrogenases which convert NADH or NADPH from NAD or NADP. Among applications for acridinium compds. as **chemiluminescent** indicators of hydride are diagnostic assays using dehydrogenases as reagents, indicators, diagnostic markers or as labels. Ethanol, for example, might be detected with acridinium ester **chemiluminescence** through the reaction of alc. dehydrogenase on ethanol, said reaction producing NADH. As a label, dehydrogenase might be used in an ELISA for the detection of a specific analyte with acridinium ester providing the signaling response. Acridinium compds. and conjugates were prepd. and used in assays for theophylline, ethanol, and other compds.
ST hydride **chemiluminescent** assay acridinium; **enzyme** assay hydride **chemiluminescent** acridinium; ELISA hydride **chemiluminescent** acridinium; theophylline assay hydride **chemiluminescent** acridinium; ethanol assay hydride **chemiluminescent** acridinium
IT Analytical apparatus

(automated; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Biochemistry
(biochem. compds., hydride from; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Immunoassay
(**enzyme**-linked immunosorbent assay; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Immunoassay
(**enzyme**; measurement of hydride using **chemiluminescent** acridinium compds.)

IT **Enzymes**, uses
RL: ARG (Analytical reagent use); CAT (Catalyst use); ANST (Analytical study); USES (Uses)
(hydride from reaction catalyzed by; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Redox reaction
(hydride from; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Analysis
(hydride generated in assay for analyte; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Antibodies
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(immobilized, to acridinium compd., for removal of intering substance from whole blood; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Blood analysis
**Chemiluminescent** substances
Diagnosis
**Luminescence, chemiluminescence**
Test kits
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT Hydrides
RL: ANT (Analyte); ANST (Analytical study)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT Antibodies
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(monoclonal; measurement of hydride using **chemiluminescent** acridinium compds.)

IT Albumins, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(serum, conjugates with acridinium compd.; measurement of hydride using **chemiluminescent** acridinium compds.)

IT 53-59-8, NADP+ 53-84-9, NAD+ 146-14-5, FAD 146-17-8, FMN
RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
(hydride from redox reaction of; measurement of hydride using **chemiluminescent** acridinium compds.)

IT 12184-88-2, Hydride 16940-66-2, NaBH4
RL: ANT (Analyte); ANST (Analytical study)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 53-57-6, NADPH 58-68-4, NADH
RL: ANT (Analyte); ARU (Analytical role, unclassified); THU (Therapeutic

use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 56-54-2, Quinidine 58-55-9, Theophylline, analysis 64-17-5, Ethanol, analysis 99-66-1
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 2315-97-1D, Lucigenin, compds. or conjugates 22559-70-2D, Quinolinium, compds. or conjugates 22559-71-3D, Acridinium, compds. or conjugates 23686-76-2D, Phenanthridinium, compds. or conjugates 88373-54-0D, compds. or conjugates
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 272107-48-9P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 56-54-2D, Quinidine, conjugates with glucose-6-phosphate dehydrogenase 56-73-5, Glucose-6-phosphate 58-55-9D, Theophylline, conjugates with glucose-6-phosphate dehydrogenase 99-66-1D, conjugates with glucose-6-phosphate dehydrogenase 123-03-5 3724-65-0, Crotonic acid 9001-40-5D, Glucose-6-phosphate dehydrogenase, conjugates with theophylline 9031-72-5, Alcohol dehydrogenase 29476-99-1
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 75-07-0, Acetaldehyde, analysis
RL: ARU (Analytical role, unclassified); FMU (Formation, unclassified); ANST (Analytical study); FORM (Formation, nonpreparative)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 333-27-7, Methyl trifluoromethanesulfonate 576-26-1 5336-90-3, Acridine-9-carboxylic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 66074-67-7P, 9-Acridinecarbonyl chloride 216668-66-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 272107-49-0P 272107-50-3DP, conjugates with bovine serum albumin
RL: SPN (Synthetic preparation); PREP (Preparation)
(measurement of hydride using **chemiluminescent** acridinium compds.)

IT 272107-51-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bovine serum albumin; measurement of hydride using **chemiluminescent** acridinium compds.)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(2) Cook, D; CLINICAL CHEMISTRY 1993, V39(6), P965 HCAPLUS
(3) Czerlinski, G; JOURNAL OF BIOCHEMICAL AND BIOPHYSICAL METHODS 1988, V15, P241 HCAPLUS
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(7) Mattingly, P; US 5669819 A 1997 HCAPLUS
(8) Nakamura, S; CLINICA CHIMICA ACTA 1980, V101, P321 HCAPLUS
(9) Sato, N; TETRAHEDRON LETTERS 1996, V37(47), P8519 HCAPLUS
(10) Sotiriou-Leventis, C; US 5656426 A 1997 HCAPLUS

L61 ANSWER 6 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 2000:219053 HCAPLUS
DN 132:262391
TI Compounds, compositions and methods for generating **chemiluminescence** with phosphatase **enzymes**
IN Akhavan-Tafti, Hashem; Arghavani, Zahra; Desilva, Renuka
PA Lumigen, Inc., USA
SO U.S., 57 pp., Cont.-in-part of U.S. Ser. No. 585,090, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM C09K003-00
ICS C12Q001-00
NCL 252700000
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 3, **7**, 27
FAN.CNT 4

| | PATENT NO. | KIND | DATE | | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|---|
| PI | US 6045727 | A | 20000404 | | US 1997-894143 | 19970813 | <-- |
| | WO 9726245 | A1 | 19970724 | | WO 1997-US15 | 19970115 | <-- |
| | W: AU, CA, CN, JP, KR, US, US | | | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | | |
| | CN 1180349 | A | 19980429 | | CN 1997-190142 | 19970115 | <-- |
| | JP 2001158794 | A2 | 20010612 | | JP 2000-287789 | 19970115 | <-- |
| | US 5965736 | A | 19991012 | | US 1998-208065 | 19981209 | <-- |
| | US 6090571 | A | 20000718 | | US 1999-358002 | 19990721 | <-- |
| | US 6139782 | A | 20001031 | | US 1999-358004 | 19990721 | <-- |
| | US 6270695 | B1 | 20010807 | | US 1999-358003 | 19990721 | <-- |
| | US 6218137 | B1 | 20010417 | | US 2000-540796 | 20000331 | <-- |
| | US 6296787 | B1 | 20011002 | | US 2000-557726 | 20000426 | <-- |
| | CN 1312252 | A | 20010912 | | CN 2000-128335 | 20001117 | <-- |
| | US 2001031869 | A1 | 20011018 | | US 2001-770015 | 20010125 | <-- |
| | US 6410732 | B2 | 20020625 | | | | |
| | US 2003023089 | A1 | 20030130 | | US 2002-54417 | 20020122 | <-- |
| PRAI | US 1996-585090 | B2 | 19960116 | <-- | | | |
| | US 1996-683927 | B2 | 19960719 | <-- | | | |
| | WO 1997-US15 | W | 19970115 | <-- | | | |
| | JP 1997-526021 | A3 | 19970115 | <-- | | | |
| | US 1997-894143 | A2 | 19970813 | <-- | | | |
| | US 1999-358002 | A1 | 19990721 | <-- | | | |
| | US 2000-539816 | B1 | 20000331 | | | | |
| | US 2000-557726 | A2 | 20000426 | | | | |

OS MARPAT 132:262391
AB Novel heterocyclic compds. which generate **chemiluminescence** on reaction with a phosphatase **enzyme** are provided as well as a process for their prepn. and intermediates useful therein. The compds. comprise a nitrogen, oxygen or sulfur-contg. heterocyclic ring system bearing an exocyclic carbon-carbon double bond. The double bond is further substituted at the distal carbon with a phosphate group and an oxygen or sulfur atom-contg. group. Novel compns. further comprising a cationic arom. compd. (CAC) in addn. to the heterocyclic phosphate compd. are provided. The addn. of the CAC in the compn. greatly increases the prodn. of **chemiluminescence** and provides improved detection sensitivity. Compns. further comprising an anionic surfactant and a

non-ionic surfactant provide addnl. improvements in detection sensitivity. The novel **chemiluminescent** compds. and compns. are useful in methods for producing **light** and in assays for phosphatase **enzymes** and **enzyme** inhibitors and in assays employing **enzyme**-labeled specific **binding pairs**.

ST phosphatase **chemiluminescence** reagent; specific **binding** assay phosphatase label **chemiluminescence**

IT Blood analysis
(acid phosphatase detn. in; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Plant (Embryophyta)
(acid phosphatase of; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Bacteria (Eubacteria)
(alk. phosphatase of; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Surfactants
(as **chemiluminescence** enhancers; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Phosphonium compounds
Quaternary ammonium compounds, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(as **chemiluminescence** enhancers; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Immunoassay
(**chemiluminescence**, of hCG and TSH; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT **Chemiluminescence** spectroscopy
**Luminescence, chemiluminescence**
Southern blot hybridization
pH
(compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Biochemical molecules
(conjugates with alk. phosphatase; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Haptens
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(conjugates with alk. phosphatase; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Avidins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(conjugates, with alk. phosphatase, in Southern blot assay; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Antibodies
Nucleic acids
Oligonucleotides
Proteins, specific or class
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(conjugates, with alk. phosphatase; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT cDNA
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(for human transferrin receptor, biotin-labeled, as probe; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Gene, animal
RL: ANT (Analyte); ANST (Analytical study)
(for human transferrin receptor; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT DNA
RL: AMX (Analytical matrix); ANST (Analytical study)
(human genomic; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Transferrins
RL: ANT (Analyte); ANST (Analytical study)
(human, Western blot assay of; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Transferrin receptors
RL: ANT (Analyte); ANST (Analytical study)
(human, cDNA for, as probe; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Immunoassay
(immunoblotting; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Fluoropolymers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(membrane, in Western blot assay; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Mouse
(oncogene v-mos of, detection of, by Southern blot assay; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Mammal (Mammalia)
(phosphatase of; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Quaternary ammonium compounds, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(polymers, as **chemiluminescence** enhancers; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT Gene, animal
RL: ANT (Analyte); ANST (Analytical study)
(v-mos, detection of, of mouse, by Southern blot assay; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 155614-04-3, IR 1040
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(IR 1040, **chemiluminescence** enhancement by; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 57-09-0, Cetyltrimethylammonium bromide 151-21-3, Sodium dodecyl sulfate, analysis 2321-07-5D, Fluorescein, vinylbenzyl derivs., polymers contg. 9005-64-5, Tween 20 151346-37-1, Polyvinylbenzyltributylphosphonium chloride 151346-38-2 163342-81-2 263009-37-6 263009-38-7 263025-46-3
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(as **chemiluminescence** enhancer; compds. and compns. and methods for generating **chemiluminescence** with phosphatase

**enzymes**)

IT 77121-68-7D, salts, polymer contg. 139728-22-6D, salts, polymer contg.
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(as **chemiluminescence** enhancers; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 514-73-8, 3,3'-Diethylthiadicarbocyanine iodide 1049-38-3, 3,3'-Diethylselenacarbocyanine iodide 2197-01-5, 3,3'-Diethylthiacyanine iodide 2315-97-1, Lucigenin 3065-79-0, 3,3'-Diethyl-9-methylthiacarbocyanine iodide 12221-38-4, Basic Blue 66 12270-13-2, Basic Blue 41 42373-04-6, Basic Red 29 102185-03-5 105176-22-5
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescence** enhancement by; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 7757-83-7, Sodium sulfite
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescence** response to; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 3715-17-1, Tartrate, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescent** detection of acid phosphatase and inhibition by; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 9002-61-3, Chorionic gonadotropin
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** immunoassay detection of, of human; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 9002-71-5, TSH
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** immunoassay detection of,; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 50-28-2, Estradiol, analysis
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** immunoassay detection of; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 9001-77-8, Acid phosphatase 9001-78-9 9001-78-9D, conjugates 9013-05-2, Phosphatase
RL: ANT (Analyte); ARG (Analytical reagent use); CAT (Catalyst use); ANST (Analytical study); USES (Uses)
(compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 193884-07-0P 193884-09-2P 193884-14-9P 193884-20-7P 193884-22-9P 193884-27-4P 193884-29-6P 193884-33-2P 193884-36-5P 193884-42-3P 193884-48-9P 193884-53-6P 193884-55-8P
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 209862-53-3 209862-54-4 209862-55-5 209862-56-6 209862-57-7 209862-58-8 209862-59-9 209862-60-2 209862-61-3 209862-62-4 209862-63-5 209862-64-6 209862-65-7 209862-66-8 209862-67-9 209862-68-0 209862-69-1 209862-70-4 209862-71-5 221465-97-0 221465-98-1 221465-99-2
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 7439-95-4D, Magnesium, salts, analysis 7786-30-3, Magnesium chloride, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 127498-33-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(human transferrin receptor cDNA labeling with; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 58-85-5D, Biotin, conjugates with DNA fragments
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(in Southern blot assay; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**)

IT 263009-41-2P 263009-42-3P 263009-44-5P 263009-45-6P 263009-47-8P 263009-48-9P
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(in acridan deriv. prepn.; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**
)

IT 193884-47-8P
RL: BYP (Byproduct); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(in acridan deriv. prepn.; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**
)

IT 90-30-2, 1-Naphthylphenylamine 91-60-1, 2-Naphthalenethiol 101-16-6, 3-Methoxydiphenylamine 101-17-7, 3-Chlorodiphenylamine 106-54-7, 4-Chlorothiophenol 108-24-7, Acetic anhydride 108-95-2, Phenol, reactions 108-98-5, Thiophenol, reactions 109-78-4, 3-Hydroxypropionitrile 118-72-9, 2,6-Dimethylthiophenol 333-27-7, Methyl triflate 371-40-4, 4-Fluoroaniline 371-42-6, 4-Fluorothiophenol 460-00-4, 1-Bromo-4-fluorobenzene 576-26-1, 2,6-Dimethylphenol 696-63-9, 4-Methoxythiophenol 1544-53-2, 2,2,2-Trifluoroethanethiol 2713-34-0, 3,5-Difluorophenol 5336-90-3, Acridine-9-carboxylic acid 173407-41-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(in acridan deriv. prepn.; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**
)

IT 330-91-6P, 4,4'-Difluorodiphenylamine 351-83-7P, 4-Fluoroacetanilide 6341-92-0P 34623-43-3P, Benz[c]acridine-7-carboxylic acid 35162-27-7P 42595-25-5P 66074-67-7P, Acridine-9-carbonyl chloride 109392-90-7P, Phenyl acridine-9-carboxylate 161006-09-3P 161006-14-0P 172834-34-3P 172834-63-8P 172834-71-8P, 3-Methoxyacridine-9-carboxylic acid 173407-14-2P 173407-20-0P 173407-22-2P 173407-32-4P 173407-42-6P 173407-43-7P 173407-45-9P 173407-47-1P 173407-48-2P 173407-52-8P 193884-06-9P 193884-10-5P 193884-11-6P 193884-12-7P 193884-15-0P 193884-17-2P 193884-18-3P 193884-21-8P 193884-23-0P 193884-24-1P 193884-25-2P 193884-28-5P 193884-30-9P 193884-32-1P 193884-34-3P 193884-35-4P 193884-37-6P 193884-38-7P 193884-39-8P 193884-40-1P 193884-41-2P 193884-43-4P 193884-44-5P 193884-45-6P 193884-46-7P 193884-49-0P 193884-50-3P 193884-51-4P 193884-52-5P 193884-54-7P 263009-31-0P 263009-32-1P 263009-33-2P 263009-34-3P 263009-35-4P 263009-40-1P 263009-43-4P 263009-46-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in acridan deriv. prepn.; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**
)

IT 9004-70-0, Nitrocellulose 24937-79-9, Polyvinylidene difluoride

RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(membrane, in Western blot assay; compds. and compns. and methods for generating **chemiluminescence** with phosphatase **enzymes**
)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Akhvan-Tafti; US 5772926 1998 HCAPLUS
(2) Kitamura, M; J Biolumin Chemilumin 1995, V10, P1 HCAPLUS
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(4) McComb, R; Alkaline Phosphatase 1979, P268
(5) Miska, W; J Biolumin Chemilumin 1989, V4, P119 HCAPLUS
(6) Myers, J; Science 1993, V262, P1451 HCAPLUS
(7) Nakazono, M; Anal Sci 1992, V8, P779 HCAPLUS
(8) Sasamoto, H; Anal Chim Acta 1995, V306, P161 HCAPLUS
(9) Sasamoto, K; Chem Pharm Bull 1991, V38, P1323
(10) Ugarova, N; Biolum and Chemi New Perspectives 1981, P511

L61 ANSWER 7 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 2000:133665 HCAPLUS
DN 132:191423
TI Synthesis of near infrared **chemiluminescent** acridinium compounds and their application for labeling proteins and nucleotides
IN **Natrajan, Anand; Jiang, Qingping; Sharpe, David; Law, Say-Jong**
PA **Bayer** Corporation, USA
SO PCT Int. Appl., 89 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07D219-04
ICS G01N033-58; G01N033-533
CC 9-14 (Biochemical Methods)
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2000009487 | A1 | 20000224 | WO 1999-US18076 | 19990810 <-- |
| | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| | AU 9954739 | A1 | 20000306 | AU 1999-54739 | 19990810 <-- |
| | EP 1104405 | A1 | 20010606 | EP 1999-941005 | 19990810 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| | US 6355803 | B1 | 20020312 | US 1999-371489 | 19990810 <-- |
| | JP 2002522530 | T2 | 20020723 | JP 2000-564941 | 19990810 <-- |
| | US 2002076823 | A1 | 20020620 | US 2001-6421 | 20011206 <-- |
| PRAI | US 1998-96073P | P | 19980811 <-- | | |
| | US 1999-371489 | A3 | 19990810 | | |
| | WO 1999-US18076 | W | 19990810 | | |

AB Our results identify two sets of necessary and sufficient criteria for observing long-wavelength emission from acridinium compds.: Set A: (a) the creation of an extended conjugation system by the attachment of appropriate functional groups on the acridinium nucleus (electronic requirement); (b) coplanarity of the attached functional group and the acridone moiety during **light** emission (geometry requirement); (c) said functional group must consist of at least one arom. ring and one electron-donating atom or group with an extra **pair** of electrons

which can readily delocalize into the extended .pi. system to which the heteroatom is directly attached or built into, and establish stable extended resonance with the electron-withdrawing carbonyl moiety of the **light** emitting acridone. Such electron-donating atom or group that exists in the form of an anion has particularly strong effect to further the bathochromic shift of the emission wavelength. Set B: (a) A direct attachment at one or more of positions C-2, C-4, C-5, or C-7 of the acridinium nucleus, of electron-donating atoms or groups having extra **pair**(s) of electrons. The electron-donating entities can be the same or different if more than one electron-donating entity is used. Such electron-donating atom or group that exists in the form of an anion has particularly strong effect to further the bathochromic shift of the emission wavelength. For mols. for which the above criteria are met such as LEAE, 3-HS-DMAE, and 2-hydroxy-DMAE long wavelength-emission exceeding 500 nm and reaching into NIR region is expected and obsd. Preferably, the utility of an NIR-AC of comparable quantum yield as the conventional acridinium compds. goes hand-in-hand with the employment of a **luminescence** detector of good to excellent detection efficiency. To achieve efficient NIR signal detection and facilitate the performing of diagnostic assays, a further objective of the present invention is the advance of a concept and the realization of substituting a state-of-the-art charge-coupled device (CCD) detector for the red-insensitive photomultiplier tube (PMT) in a conventional fully or semi-automatic analyzer such as MLA-II of Chiron Diagnostics, Walpole, MA.

ST near IR **chemiluminescent** acridinium deriv labeling protein DNA; acridinium deriv labeling protein DNA immunoassay hybridization fluorometry

IT Immunoassay
(fluorescence; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT Albumins, analysis
RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(serum, conjugates NSB-3-HS-DMAE-BSA, 3-HS-DMAE-BSA, NSB-3-MS-DMAE-BSA, 2-HS-DMAE-BSA; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT Antibiotic resistance
Fluorometry
Nucleic acid hybridization
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT Nucleotides, uses
Proteins, general, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT Antibodies
RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(to TSH, conjugates NSB-3-HS-DMAE-anti-TSH, NSB-3-MS-DMAE-anti-TSH; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-31-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(2-BS-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-37-4P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(2-HP-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-25-0P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(2-HS-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-47-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(2-MEM-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-45-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(2-MEM-DMAeE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-48-7P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(2-OH-DMAE-NHS; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-42-1P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(2-OH-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-16-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(3-BS-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-41-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(3-BzP-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-40-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(3-BzP-DMAeE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-11-4P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(3-HS-DMAE-NHS; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-10-3P
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(3-HS-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-35-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(NSB-2-MS-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-32-9P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(NSB-2-MS-DMAE-NHS; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-36-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(NSB-2-MS-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-18-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(NSB-3-BS-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-17-0P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(NSB-3-HS-DMAE-NHS; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-19-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(NSB-3-HS-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-23-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(NSB-3-MS-DMAE-Bz; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-20-5P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(NSB-3-MS-DMAE-NHS; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-24-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(NSB-3-MS-DMAE; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259783-64-7DP, conjugate with 2-OH DMAE
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(Vanco A probe 526.20; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259783-68-1
RL: ANT (Analyte); ANST (Analytical study)
(Vanco A synthetic target 526.53, vancomycin A resistance gene; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259783-65-8DP, conjugate with DMAE

RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(Vanco B probe 495.23; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 148794-24-5D, DMAE, conjugate with vancomycin A probe 259783-69-2
RL: ANT (Analyte); ANST (Analytical study)
(Vanco B synthetic target 459.23, vancomycin B resistance gene; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259783-66-9P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(cross-linked Vanco A PMP-probe 557.22; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259783-67-0P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(cross-linked Vanco B PMP-probe 496.20; synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 9002-71-5, Thyroid stimulating hormone
RL: ANT (Analyte); ANST (Analytical study)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 10602-01-4DP, conjugate with BSA 259169-11-4DP, conjugate with BSA 259169-19-2DP, conjugates with BSA and anti-TSH 259169-24-9DP, conjugates with BSA and anti-TSH
RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 3462-97-3P 22559-71-3DP, Acridinium, derivs.
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 1404-90-6, Vancomycin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 91-56-5, Isatin 107-21-1, 1,2-Ethanediol, reactions 538-75-0, Dicyclohexylcarbodiimide 540-38-5, 4-Iodophenol 603-35-0, Triphenyl phosphine, reactions 824-94-2, 4-Methoxybenzyl chloride 836-42-0, 4-Benzyloxybenzyl chloride 1122-91-4, 4-Bromobenzaldehyde 1633-83-6, 1,4-Butane sultone 3970-21-6, Methoxyethoxymethyl chloride 6066-82-6, n-Hydroxysuccinimide 7681-65-4, Copper iodide (CuI) 17789-14-9, 2-(3-Bromophenyl)-1,3-dioxolane 37181-39-8, Trifluoromethanesulfonate 115853-69-5 259169-34-1 259169-38-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 1875-19-0P 10602-01-4P 199190-18-6P 221057-35-8P 221057-36-9P 259169-12-5P 259169-13-6P 259169-14-7P 259169-21-6P 259169-26-1P 259169-27-2P 259169-28-3P 259169-29-4P 259169-30-7P 259169-33-0P 259169-39-6P 259169-42-1DP, conjugate with Vancomycin A probe 259169-43-2P 259169-44-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)

IT 259169-22-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of near IR **chemiluminescent** acridinium compds. and application for labeling proteins and nucleotides)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Ciba Corning Diagnostics Corp; EP 0263657 A 1988 HCAPLUS
(2) Ciba Corning Diagnostics Corp; EP 0353971 A 1990 HCAPLUS
(3) Ciba Corning Diagnostics Corp; EP 0361817 A 1990 HCAPLUS
(4) Nederlanden Staat; WO 9802421 A 1998 HCAPLUS

L61 ANSWER 8 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:84970** HCAPLUS
DN **132:134365**
TI Labeled **complex**, process for producing the **complex**, and uses
IN Machida, Masayuki; Tajima, Hideji
PA Japan as Represented by Director-General of Agency of Industrial Science and, Japan; Precision System Science Co., Ltd.
SO PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM C12N015-10
ICS C12N011-00; C12Q001-68; C07K001-22
CC **9-15** (**Biochemical Methods**)
Section cross-reference(s): 3
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2000005357 | A1 | 20000203 | WO 1999-JP3824 | 19990715 <-- |
| | W: JP, US | | | | |
| | RW: DE, FR, GB | | | | |
| | EP 1099756 | A1 | 20010516 | EP 1999-929854 | 19990715 <-- |
| | R: DE, FR, GB | | | | |
| PRAI | JP 1998-206057 | A | 19980722 <-- | | |
| | WO 1999-JP3824 | W | 19990715 <-- | | |

AB A labeled **complex** as a multimol. marker in combinatorial chem., its method of prodn., and the uses are disclosed. The labeled **complex** makes it possible to stably and clearly distinguish several thousands to tens of thousands of various micro substances with high sensitivity and accuracy and to simultaneously satisfy the requirements for improving the ability to capture targets, enhancing the distinguishing sensitivity, and increasing the no. of substances to be distinguished. The above labeled **complex** is composed of a micro particle, a no. of target-carrying substances each linked at one end to the micro particle, and a label linked to each target-carrying substance at another end, wherein each of the target-carrying substances carries or is capable of carrying one or more targets, and the whole labeled substance is constituted so that definite types are contained therein at a definite ratio and distributed to all of the target-carrying substances bonded thereto. The target-carrying substances can be a synthetic substance contg. a biol. macromol. such as nucleic acid, peptide, protein, polysaccharide, or lipid, or organisms such as virus or bacteria or their parts. The label can be a luminescent substance such as fluorescent substance, phosphorescent substance, or a **chemiluminescent** substance. DNA fragment can be coated with one of the **pair** of specifically bonding substances such as avidin and biotin, or an allelopathic substance such as magnetic particle. A method of detecting a label by passing it through a **light** transmitting capillary, and an app. for the purpose are also described.
ST label **complex** combinatorial chem micro particle carrier
IT Annealing

(DNA strands, for synthesis of labeled **complex**; labeled **complex**, process for producing the **complex**, and uses)

IT **Enzymes**, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(DNA-restriction-modification; labeled **complex**, process for producing the **complex**, and uses)

IT Nucleic acid amplification (method)
(DNA; labeled **complex**, process for producing the **complex**, and uses)

IT Chemistry
(addn. compds.; labeled **complex**, process for producing the **complex**, and uses)

IT Macromolecular compounds
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(biol.; labeled **complex**, process for producing the **complex**, and uses)

IT DNA
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(double-stranded; labeled **complex**, process for producing the **complex**, and uses)

IT Analytical apparatus
Bacteria (Eubacteria)
Biotinylation
Capillary tubes
**Chemiluminescent** substances
Fluorescent substances
Labels
Luminescent substances
Microorganism
Microparticles
Phosphorescent substances
Spectrophotometry
Virus
(labeled **complex**, process for producing the **complex**, and uses)

IT Avidins
Lipids, uses
Nucleic acids
Peptides, uses
Polysaccharides, uses
Proteins, general, uses
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(labeled **complex**, process for producing the **complex**, and uses)

IT Isotopomers
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(labeled **complex**, process for producing the **complex**, and uses)

IT Primers (nucleic acid)
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(labeled **complex**, process for producing the **complex**, and uses)

IT DNA
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(labeled; labeled **complex**, process for producing the **complex**, and uses)

IT Microparticles
Microparticles
(magnetic; labeled **complex**, process for producing the **complex**, and uses)
IT Carriers
(microcarriers; labeled **complex**, process for producing the **complex**, and uses)
IT Magnetic particles
Magnetic particles
(microparticles; labeled **complex**, process for producing the **complex**, and uses)
IT DNA
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(single-stranded; labeled **complex**, process for producing the **complex**, and uses)
IT 9015-85-4, DNA ligase
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(labeled **complex**, process for producing the **complex**, and uses)
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Dade International Inc; JP 04503968 A
(2) Dade International Inc; ES 2099156 T3 HCAPLUS
(3) Dade International Inc; JP 2589618 B2
(4) Dade International Inc; JP 2762259 B2 HCAPLUS
(5) Dade International Inc; EP 463144 A HCAPLUS
(6) Dade International Inc; EP 463144 A4 HCAPLUS
(7) Dade International Inc; EP 463144 B HCAPLUS
(8) Dade International Inc; US 5283079 A HCAPLUS
(9) Dade International Inc; US 5395688 A HCAPLUS
(10) Dade International Inc; AU 634631 B HCAPLUS
(11) Dade International Inc; DE 69029908 E
(12) Dade International Inc; WO 9109141 A HCAPLUS
(13) Dade International Inc; AU 9171746 A HCAPLUS
(14) Dade International Inc; JP 928397 A 1997
(15) Hitachi Ltd; JP 06343496 A 1994 HCAPLUS
(16) Tajima, S; Journal of the Applied Magnetics Assoc of Japan 1998, V22(5), P1010

L61 ANSWER 9 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1999:656005 HCAPLUS
DN 131:293099
TI Compositions and methods for generating red **chemiluminescence**
IN Akhavan-Tafti, Hashem
PA Lumigen, Inc., USA
SO U.S., 20 pp., Cont.-in-part of U.S. Ser. No. 894,143.
CODEN: USXXAM
DT Patent
LA English
IC C07F007-08; C07F009-6539
NCL 548110000
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): **3, 9**
FAN.CNT 4

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 5965736 | A | 19991012 | US 1998-208065 | 19981209 <-- |
| | WO 9726245 | A1 | 19970724 | WO 1997-US15 | 19970115 <-- |

W: AU, CA, CN, JP, KR, US, US
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

| | | | | | |
|---|---|---|---|---|---|
| | CN 1180349 | A | 19980429 | CN 1997-190142 | 19970115 <-- |
| | JP 2001158794 | A2 | 20010612 | JP 2000-287789 | 19970115 <-- |
| | US 6045727 | A | 20000404 | US 1997-894143 | 19970813 <-- |
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| | EP 1008600 | A2 | 20000614 | EP 1999-309865 | 19991208 <-- |
| | EP 1008600 | A3 | 20020227 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
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| PRAI | US 1996-585090 | B2 | 19960116 <-- | | |
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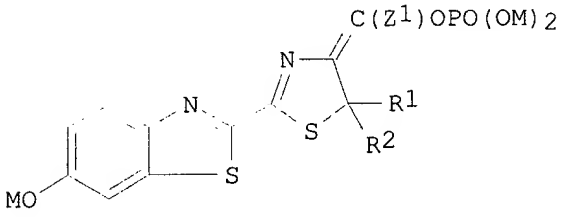
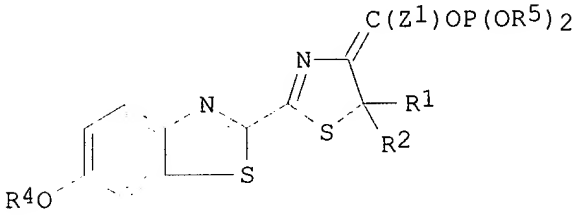
| | WO 1997-US15 | A2 | 19970115 <-- | | |
| | US 1997-894143 | A2 | 19970813 <-- | | |
| | JP 1997-526021 | A3 | 19970115 <-- | | |
| | US 1998-208065 | A | 19981209 <-- | | |

OS MARPAT 131:293099

GI




I




II

AB Compds. are described which have the general formulas I (Z1 = OR3 or SR3; R3 = (un)substituted alkyl, (un)substituted aryl, and (un)substituted aralkyls; R1 and R2 = independently selected (un)substituted alkyls or can be combined to form cycloalkyl, (un)substituted aryl, or (un)substituted aralkyl; and M = H or a cation selected from alkali metal ions, alk. earth ions, ammonium, quaternary ammonium, quaternary phosphonium ions, dicationic ammonium or phosphonium compds. and polymeric compds. with multiple cationic groups) and II (Z1 = OR3 or SR3; R3 = substituted or unsubstituted alkyl, (un)substituted aryl, and (un)substituted aralkyl groups, R1 and R2 are independently selected from (un)substituted alkyl, (un)substituted aryl, and (un)substituted aralkyl groups and can be joined to form an (un)substituted cycloalkyl group; R4 = a trialkylsilyl group, an alkyldiarylsilyl group, an alkylcarbonyl group or an arylcarbonyl group; one R5 group is protecting group selected from substituted alkyl, trialkylsilyl, alkyldiarylsilyl, and aralkyl groups, and the other R5 group is selected from substituted alkyl, trialkylsilyl, alkyldiarylsilyl, and aralkyl groups or an alkali metal ion). The **chemiluminescent** materials can be applied in assays for phosphatase **enzymes** and in assays employing **enzyme**-labeled specific **binding pairs**.

ST luciferin deriv red **chemiluminescence**

IT Immunoassay

(**chemiluminescence enzyme**; luciferin derivs. producing red **chemiluminescence** for)

IT Immunoassay
(immunoblotting; luciferin derivs. producing red **chemiluminescence** for)
IT **Chemiluminescent** substances
(luciferin derivs. producing red **chemiluminescence**)
IT Dot blot hybridization
(luciferin derivs. producing red **chemiluminescence** for)
IT 246161-32-0P 246161-48-8P 246161-49-9P 246161-50-2P 246161-51-3P
246161-52-4P 246161-53-5P 246161-54-6P 246161-55-7P 246161-56-8P
246161-57-9P 246161-58-0P 246161-59-1P 246161-62-6P
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(luciferin derivs. producing red **chemiluminescence**)
IT 246161-35-3P 246161-37-5P 246161-38-6P 246161-39-7P 246161-40-0P
246161-41-1P 246161-42-2P 246161-43-3P 246161-44-4P 246161-45-5P
246161-46-6P 246161-47-7P
RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(luciferin derivs. producing red **chemiluminescence**)
IT 246160-95-2P 246161-16-0P 246161-30-8P 246161-60-4P 246161-61-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(luciferin derivs. producing red **chemiluminescence**)
IT 52-66-4, DL-Penicillamine 78-97-7, 2-Hydroxypropionitrile 106-54-7, p-Chlorothiophenol 108-18-9, Diisopropylamine 108-98-5, Thiophenol, reactions 110-86-1, Pyridine, reactions 288-32-4, Imidazole, reactions 530-62-1 939-69-5, 2-Cyano-6-hydroxybenzothiazole 1310-73-2, Sodium hydroxide, reactions 3282-30-2, Pivaloyl chloride 3374-22-9, Cysteine 10025-87-3, Phosphoryl trichloride 27460-00-0, Thionaphthol 58479-61-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(luciferin derivs. producing red **chemiluminescence**)
IT 9002-71-5, Thyroid stimulating hormone 9031-11-2, .beta.-Galactosidase
RL: ANT (Analyte); ANST (Analytical study)
(luciferin derivs. producing red **chemiluminescence** for assay of)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; WO 97/26245 1997 HCAPLUS
(2) Hopkins, T; J Am Chem Soc 1967, V89, P7148 HCAPLUS
(3) Kricka; US 5629168 1997 HCAPLUS
(4) McElroy, W; Photochem Photobiol 1969, V10, P153 HCAPLUS
(5) White, E; J Am Chem Soc 1966, V88, P2015 HCAPLUS
(6) White, E; J Org Chem 1966, V31, P1484 HCAPLUS

L61 ANSWER 10 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1999:220082 HCAPLUS
DN 130:248735
TI **Chemiluminescence** compositions and methods for analysis of peroxidase-**enzymes**
IN Akhavan-Tafti, Hashem
PA Lumigen, Inc., USA
SO PCT Int. Appl., 103 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-00
ICS C12Q001-28; C12Q001-68; C09K003-00; G01N021-76; G01N033-53
CC 7-1 (**Enzymes**)
Section cross-reference(s): **9**, 28, 73
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|

PI WO 9914358 A1 19990325 WO 1998-US15813 19980812 <--
W: AU, CA, CN, JP, KR
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
US 5922558 A 19990713 US 1997-928793 19970912 <--
CA 2300096 AA 19990325 CA 1998-2300096 19980812 <--
AU 9888975 A1 19990405 AU 1998-88975 19980812 <--
AU 733086 B2 20010503
EP 1019525 A1 20000719 EP 1998-940778 19980812 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI
JP 2001516589 T2 20011002 JP 2000-511896 19980812 <--
PRAI US 1997-928793 A 19970912 <--
WO 1998-US15813 W 19980812 <--
OS MARPAT 130:248735
AB Methods and compns. for generating **chemiluminescence** on reaction with a peroxidase **enzyme** are provided as well as novel compds. useful therein. The compds. comprise a C-C double bond substituted at one carbon with two oxygen or sulfur atom-contg. groups. The compns. comprise the double bond contg. compd., a peroxide and optionally a peroxidase activity enhancing substance in an aq. soln. The compns. can addnl. comprise a nonionic surfactant or a cationic surfactant or both to improve detection sensitivity or the peroxidase. The novel **chemiluminescent** methods and compns. are useful in assays for peroxidase **enzymes** and in assays employing **enzyme** -labeled specific **binding pairs**.
ST peroxidase **substrate chemiluminescent** analysis
IT Energy transfer
(agent; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT Hydroperoxides
RL: ANT (Analyte); ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(alkyl; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT Amines, biological studies
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(arom.; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT Acids, biological studies
Acids, biological studies
Group IIIA element compounds
Group IIIA element compounds
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(boronic acids, aryl; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT Surfactants
(cationic; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT **Chemiluminescence** spectroscopy
**Chemiluminescent** substances
Immunoassay
**Luminescence, chemiluminescence**
Northern blot hybridization
Nucleic acid hybridization
Southern blot hybridization
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Peroxides, biological studies
RL: ANT (Analyte); ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Phenols, biological studies
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Heterocyclic compounds
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Immunoassay
(**chemiluminescence**; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Antibodies
Haptens
Nucleic acids
Oligonucleotides
Proteins, specific or class
RL: ANT (Analyte); ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(conjugates, with peroxidase; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Polyoxyalkylenes, biological studies
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(derivs.; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Immunoassay
(**enzyme**-linked immunosorbent assay; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Immunoassay
(immunoblotting; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Surfactants
(nonionic; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Group IIIA element compounds
RL: ANT (Analyte); ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(perborates; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT Alcohols, biological studies
Ethers, biological studies
Phenols, biological studies
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(polyoxyethylenated alkyl derivs.; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 9035-73-8, Oxidase

RL: ANT (Analyte); ARG (Analytical reagent use); ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 9003-99-0, Peroxidase 9003-99-0D, Peroxidase, conjugate 93229-67-5, Haloperoxidase
RL: ANT (Analyte); ARG (Analytical reagent use); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 124-43-6 7722-84-1, Hydrogen peroxide (H2O2), biological studies
RL: ANT (Analyte); ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 42613-30-9, Lignin peroxidase
RL: ANT (Analyte); ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 9031-11-2, .beta.-Galactosidase
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 193884-06-9 193884-08-1 193884-13-8 193884-19-4 193884-21-8
193884-26-3 193884-28-5 193884-32-1 193884-35-4 193884-41-2
193884-46-7 193884-52-5 193884-54-7 209862-63-5 209862-64-6
209862-66-8 209862-67-9 209862-68-0 209862-69-1 209862-70-4
209862-71-5 221465-97-0 221465-98-1 221465-99-2 221466-00-8
221466-01-9 221466-02-0 221466-03-1 221466-04-2 221466-05-3
221466-06-4 221466-07-5 221466-08-6 221466-09-7 221466-10-0
221466-11-1
RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 193884-09-2P 193884-14-9P 193884-20-7P 193884-27-4P 193884-29-6P
193884-33-2P 193884-36-5P 193884-42-3P 193884-48-9P 209862-53-3P
209862-54-4P 209862-55-5P 209862-56-6P 209862-57-7P 209862-58-8P
209862-59-9P 209862-60-2P 209862-61-3P 209862-62-4P 221465-85-6P
221465-86-7P 221465-87-8P 221465-88-9P 221465-89-0P 221465-90-3P
221465-91-4P 221465-92-5P 221465-93-6P 221465-94-7P 221465-95-8P
221465-96-9P
RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)

IT 193884-07-0P 193884-22-9P 193884-53-6P 193884-55-8P
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 57-09-0, CTAB 523-27-3, 9,10-Dibromoanthracene 9005-64-5, Tween 20
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 50-70-4D, Sorbitol, polyoxyethylenated esters 92-69-3, p-Phenylphenol 103-90-2, Acetaminophen 106-41-2, p-Bromophenol 120-83-2, 2,4-Dichlorophenol 135-19-3, 2-Naphthol, biological studies 540-38-5, p-Iodophenol 7400-08-0, p-Hydroxycinnamic acid 15231-91-1, 6-Bromo-2-naphthol 25322-68-3D, Polyethylene glycol, derivs. 208039-05-8
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 106-54-7, 4-Chlorobenzenethiol 108-24-7 108-95-2, Phenol, reactions 108-98-5, Benzenethiol, reactions 117-34-0, Diphenylacetic acid 492-22-8, Thioxanthone 814-49-3 3282-30-2, Pivaloyl chloride 18162-48-6 60756-73-2 64709-55-3, 1-Pyreneacetic acid 161006-09-3 173407-41-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 261-31-4P, Thioxanthene 17394-14-8P, Thioxanthene-9-carboxylic acid 54934-31-5P 58241-12-6P 221449-56-5P 221449-57-6P 221449-58-7P 221449-61-2P 221449-62-3P 221449-63-4P 221449-65-6P 221449-66-7P 221449-67-8P 221449-69-0P 221466-12-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 221449-42-9P 221449-43-0P 221449-44-1P 221449-45-2P 221449-46-3P 221449-47-4P 221449-48-5P 221449-49-6P 221449-50-9P 221449-51-0P 221449-52-1P 221449-53-2P 221449-54-3P 221466-13-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(**chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 9007-43-6, Microperoxidase, biological studies
RL: ANT (Analyte); ARG (Analytical reagent use); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(heme peptide; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
IT 69279-19-2
RL: ANT (Analyte); ARG (Analytical reagent use); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(vanadium-dependent; **chemiluminescence** compns. and methods for anal. of peroxidase **enzymes**)
RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Akhavan-Tafti, H; Proc Int Symp of 1996, V9th Ed, P311
(2) Lumigen Inc; WO 9726245 A1 1997 HCAPLUS

L61 ANSWER 11 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1999:183770 HCAPLUS
DN 130:220167
TI Long emission wavelength **chemiluminescent** ring-fused acridinium compounds and their use in test assays

IN **Law, Say-jong; Jiang, Qingping;** Fischer, Walter; Unger, John T.; Krodel, Elizabeth K.; Xi, Jun
PA Chiron Diagnostics Corporation, USA
SO U.S., 80 pp., Cont.-in-part of U.S. 5,395,752.
CODEN: USXXAM
DT Patent
LA English
IC ICM G01N033-53
ICS G01N021-76; G01N033-566; G01N033-536
NCL 435007100
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 6, 27, 73
FAN.CNT 2

| | PATENT NO. | KIND | DATE | | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|---|
| PI | US 5879894 | A | 19990309 | | US 1994-308772 | 19940919 | <-- |
| | US 5395752 | A | 19950307 | | US 1993-35130 | 19930319 | <-- |
| | AU 9455018 | A1 | 19940922 | | AU 1994-55018 | 19940210 | <-- |
| | AU 677259 | B2 | 19970417 | | | | |
| | CA 2118891 | AA | 19940920 | | CA 1994-2118891 | 19940311 | <-- |
| | WO 9421823 | A1 | 19940929 | | WO 1994-US3020 | 19940318 | <-- |
| | W: PL | | | | | | |
| | PL 178927 | B1 | 20000630 | | PL 1994-306210 | 19940318 | <-- |
| | JP 08320319 | A2 | 19961203 | | JP 1994-50109 | 19940322 | <-- |
| | US 5702887 | A | 19971230 | | US 1994-340093 | 19941114 | <-- |
| PRAI | US 1993-35130 | A2 | 19930319 | <-- | | | |
| | WO 1994-US3020 | W | 19940318 | <-- | | | |

AB The present invention relates to a new class of **chemiluminescent**, arom. ring-fused acridinium compds. (AFAC) which emit green or yellow **light** upon simple chem. treatments. This invention also relates to conjugates formed from AFAC and binding **partners**, e.g. biol. mols., and test assays utilizing the conjugates. The synthesis of **chemiluminescent** reagents or conjugates for use in such methods as well as kits incorporating such reagents are also disclosed. Furthermore, the invention relates to test assays in which the detection and/or quantitation of two or more substances or analytes in a test sample can be carried out simultaneously due to the discernable and non-interfering **light** emission characteristics of two or more **chemiluminescent** conjugates. The assays have particular application in the field of clin. diagnostics.

ST **chemiluminescent** acridinium compd synthesis immunoassay

IT Onium compounds
RL: ARU (Analytical role, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(acridinium, esters; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT Onium compounds
RL: ARU (Analytical role, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(acridinium; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT Diagnosis
(agents; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT Immunoassay
(**chemiluminescence**; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT Diagnosis

(immunodiagnosis; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT Blood analysis
Blood serum
**Chemiluminescence** spectroscopy
Diagnosis
Immunoassay
Nucleic acid hybridization
Test kits
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT **Chemiluminescent** substances
**Luminescence, chemiluminescence**
(long emission wavelength; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT Antibodies
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(monoclonal; long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 9002-71-5, Thyrotropin
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 9002-67-9, Luteinizing hormone 9002-68-0, Follicle-stimulating hormone
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 158788-43-3P 221057-07-4P
RL: ARU (Analytical role, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 158788-06-8P 158788-08-0P 158788-12-6P 158788-16-0P 158788-21-7P
158788-27-3P 158788-32-0P 158788-35-3P 158788-40-0P 221057-03-0P
221057-29-0P 221057-46-1P 221057-47-2P 221057-49-4P
RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 62-53-3, Aniline, reactions 74-96-4, Bromoethane 76-05-1, reactions
77-78-1, Dimethyl sulfate 91-56-5, Isatin 92-70-6,
3-Hydroxy-2-naphthoic acid 100-39-0, Benzyl bromide 104-94-9
106-44-5, reactions 107-21-1, 1,2-Ethanediol, reactions 108-46-3,
1,3-Benzenediol, reactions 128-08-5, N-Bromosuccinimide 135-88-6,
N-Phenyl-.beta.-naphthylamine 421-20-5, Methyl fluorosulfonate
540-38-5, p-Iodophenol 591-50-4, Iodobenzene 603-35-0,
Triphenylphosphine, reactions 609-09-6, Diethylketomalonate 696-62-8,
p-Iodoanisole 1069-72-3 1120-71-4, 1,3-Propane sultone 2078-54-8
2862-39-7 3132-99-8, 3-Bromobenzaldehyde 3724-65-0, Crotonic acid
4025-64-3, 3-(Chlorosulfonyl)benzoic acid 4584-46-7 4919-37-3
5810-96-8, Benzo[5,6]isatin 6066-82-6, N-Hydroxysuccinimide 6608-47-5,
Ethenesulfonyl chloride 58471-30-0 83194-74-5 87198-89-8
115853-69-5 126430-47-5 158788-29-5 158788-57-9,
Acridine-9-carboxylic acid hydrochloride 221057-40-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 3196-40-5P, Benz[a]acridine-12-carbonyl chloride 6973-58-6P
13423-73-9P 17789-14-9P 60343-31-9P 65416-24-2P, Benzyl crotonate
93790-54-6P 125552-59-2P 130266-36-3P 130266-50-1P,
Benz[b]acridine-12-carboxylic acid 147410-81-9P 158788-09-1P
158788-10-4P 158788-13-7P 158788-14-8P 158788-18-2P 158788-19-3P
158788-24-0P 158788-25-1P 158788-30-8P 158788-31-9P 158788-34-2P
158788-36-4P 158788-38-6P 158788-41-1P 158788-44-4P 158788-46-6P
158788-49-9P, Benz[b]acridine-12-carbonitrile 158788-50-2P
158788-51-3P 158788-52-4P 158788-53-5P 158788-54-6P 158788-55-7P
158788-56-8P 158788-58-0P 158788-59-1P 158788-60-4P,
Benz[a]acridine-12-carboxylic acid 160116-96-1P 161159-44-0P
221057-01-8P 221057-04-1P 221057-05-2P 221057-12-1P 221057-13-2P
221057-14-3P 221057-35-8P 221057-36-9P 221057-37-0P 221057-41-6P
221057-42-7P 221057-44-9P 221057-50-7P 221057-51-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

IT 160098-34-0P 221057-34-7P 221057-38-1P 221057-39-2P 221057-52-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(long emission wavelength **chemiluminescent** ring-fused acridinium compds. and their use in test assays)

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L61 ANSWER 12 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1998:785598 HCAPLUS
DN 130:33956
TI **Chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**
IN Akhavan-Tafti, Hashem; Sugioka, Katsuaki; Sugioka, Yumiko; Reddy, Lekkala V.
PA Lumigen, Inc., USA
SO U.S., 23 pp., Cont.-in-part of U.S. Ser. No. 300,367.
CODEN: USXXAM
DT Patent
LA English
IC ICM G01N033-535
NCL 435006000
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): **6, 9, 13, 14**
FAN.CNT 12

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 5843666 | A | 19981201 | US 1996-749595 | 19961115 <-- |
| | US 5686258 | A | 19971111 | US 1994-300367 | 19940902 <-- |
| | CA 2259963 | AA | 19980522 | CA 1997-2259963 | 19971107 <-- |
| | WO 9821586 | A1 | 19980522 | WO 1997-US19612 | 19971107 <-- |
| | W: AU, CA, CN, JP, KR | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| | AU 9850940 | A1 | 19980603 | AU 1998-50940 | 19971107 <-- |
| | AU 726512 | B2 | 20001109 | | |
| | EP 938677 | A1 | 19990901 | EP 1997-913856 | 19971107 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| | JP 2001504226 | T2 | 20010327 | JP 1998-522595 | 19971107 <-- |
| PRAI | US 1994-300367 | A2 | 19940902 <-- | | |
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WO 1997-US19612 W 19971107 <--

OS MARPAT 130:33956

AB Methods of detecting analytes or target species using two **enzyme**-labeled specific **binding partners** where the two **enzymes** function in concert to produce a detectable **chemiluminescent** signal are disclosed. The methods use a specific **binding partner** labeled with a **hydrolytic enzyme** to produce a phenolic enhancer in close proximity to a peroxidase-labeled second specific **binding partner.** The method is useful to detect and quantitate with improved specificity various biol. mols. including antigens and antibodies by the technique of immunoassay, proteins by Western blotting, DNA by Southern blotting, RNA by Northern blotting. The method may also be used to detect DNA mutations and juxtaposed gene segments in chromosomal translocations and particularly to unambiguously identify heterozygous genotypes in a single test.

ST **chemiluminescent** analysis **dual enzyme** label probe hybridization

IT **Chemiluminescence** spectroscopy
**Chemiluminescent** substances
Chromosome
Cystic fibrosis
Epitopes
Filters
Human immunodeficiency virus 1
Immunoassay
**Luminescence, chemiluminescence**
Membranes, nonbiological
Molecular association
Mutation
Northern blot hybridization
Nucleic acid hybridization
PCR (polymerase chain reaction)
Southern blot hybridization
Test tubes
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT DNA
Proteins, general, biological studies
RNA
RL: ANT (Analyte); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Gene
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Antibodies
Antigens
Nucleic acids
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Peroxides, analysis

Phenols, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT **Enzymes**, biological studies
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Avidins
Haptens
Oligonucleotides
Probes (nucleic acid)
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Gene, animal
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Disease, animal
(genetic, recessive; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Diagnosis
(genetic; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Envelope proteins
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(gp120env; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Genotypes
(heterozygosity; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT **Enzymes**, biological studies
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**hydrolytic**; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Polyethers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(hydroxy-contg.; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Immunoassay
(immunoblotting; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Diagnosis
(mol.; **chemiluminescent** detection methods using **dual**

**enzyme**-labeled **binding partners**)
IT Milk
(non-fat; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Surfactants
(nonionic; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Group IIIA element compounds
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(perborates; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Recombination, genetic
(rearrangement; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Phosphates, biological studies
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(salts; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Immunoassay
(sandwich; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Albumins, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(serum; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Recombination, genetic
(translocation; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT Polymers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(water-sol.; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT 9002-61-3, Human chorionic gonadotropin
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT 9005-64-5, Tween 20 13095-41-5, 2-Naphthyl phosphate 216500-60-6
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)
IT 92-69-3, p-Phenylphenol 103-90-2, p-Hydroxyacetanilide 106-41-2, p-Bromophenol 106-48-9, p-Chlorophenol 120-83-2, 2,4-Dichlorophenol 135-19-3, 2-Naphthol, biological studies 500-85-6, Phenolindophenol 540-38-5, p-Iodophenol 939-69-5, 2-Cyano-6-hydroxy-benzothiazole 2591-17-5, Luciferin 2975-55-5 2975-55-5D, halogenated 7400-08-0, p-Hydroxycinnamic acid 9001-22-3, .beta.-Glucosidase 9001-45-0, .beta.-Glucuronidase 9001-78-9, Alkaline phosphatase 9003-99-0, Peroxidase 9016-18-6, Carboxyl esterase 9031-11-2, .beta.-Galactosidase 13388-88-0 13599-84-3, 6-Hydroxybenzothiazole

15231-91-1, 6-Bromo-2-naphthol 20056-42-2 20115-09-7, Dehydroluciferin
24154-09-4 46817-52-1 75966-18-6 108672-78-2 129058-46-4
137015-67-9 207920-67-0 207920-68-1 207920-68-1D, halogenated
207920-69-2 207920-70-5 207920-71-6 208039-05-8 208039-06-9
208039-07-0 208039-08-1
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 58-85-5, Biotin 124-43-6 521-31-3, Luminol 1672-46-4, Digoxigenin 2321-07-5, Fluorescein 7607-80-9 7722-84-1, Hydrogen peroxide, biological studies 9013-20-1, Streptavidin 207996-97-2D, 5' biotin conjugate 208057-32-3D, 3' fluorescein conjugate
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 134709-72-1 207996-96-1
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(primer; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 207996-94-9D, 5' conjugate with fluorescein 207996-95-0D, conjugate with digoxigenin 207996-98-3D, 5' biotin conjugate 207996-99-4D, 5' digoxigenin conjugate
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(probe; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L61 ANSWER 13 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1998:435771 HCAPLUS
DN 129:106280

TI **Chemiluminescent** reactions using dihydroxyaromatic compounds and heterocyclic enol phosphates
IN Akhavan-Tafti, Hashem
PA Lumigen, Inc., USA
SO U.S., 32 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C09K003-00
ICS C12Q001-00
NCL 252700000
CC **9-15** (**Biochemical Methods**)
Section cross-reference(s): 73, 80
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | US 5772926 | A | 19980630 | US 1997-855421 | 19970513 | <-- |
| | US 5840963 | A | 19981124 | US 1998-21322 | 19980210 | <-- |
| | WO 9940161 | A1 | 19990812 | WO 1998-US11489 | 19980612 | <-- |
| | W: AU, CA, CN, JP, KR | | | | | |
| | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | |
| | AU 9880576 | A1 | 19990823 | AU 1998-80576 | 19980612 | <-- |
| | AU 743524 | B2 | 20020131 | | | |
| | EP 1054933 | A1 | 20001129 | EP 1998-928882 | 19980612 | <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | | |
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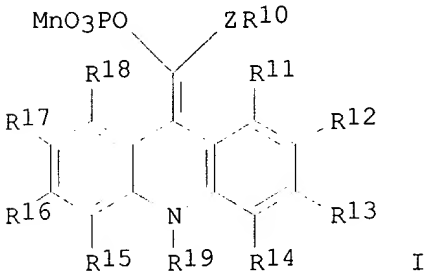
OS MARPAT 129:106280
GI




I

AB Methods of generating **chemiluminescence** entail reacting, in the presence of oxygen, a dihydroxyarom. compd. which comprises from 1-5 carbocyclic arom. rings and which is substituted with two hydroxy groups sepd. by an even no. of ring carbon atoms with a heterocyclic enol phosphate compd. described by the general formula I (R10 is an org. group contg. up to 50 non-hydrogen atoms selected from C, N, O, S, P and halogen atoms; R11-18 are independently selected from hydrogen, (un)substituted alkyl, (un)substituted aryl, (un)substituted aralkyl, alkenyl, alkynyl, alkoxy, aryloxy, halogen, (un)substituted amino, carboxyl, carboalkoxy, carboxamide, cyano, and sulfonate groups; **pairs** of adjacent groups can complete a benzo-fused ring; R19 is an org. group contg. .ltoreq.50 nonhydrogen atoms selected from C, N, O, S, P and halogen

atoms; Z = O or S; M is independently selected from H and a cationic center; n is a no. which satisfies electroneutrality; any one of R11-18 or a substituent on any one of R10-19 can be a group -A-Q; A is a spacer group selected from C1-10 alkylene and C2-10 oxyalkylene groups; and Q is a linking group capable of forming a covalent bond selected from halogen, diazo, -NCO, -NCS, -CHO, acid anhydride, oxiranyl, succinimidoxycarbonyl, maleimide, cyano, triazole, tetrazole, hydroxyl, -COOH, thiol, and primary and secondary amino groups). **Chemiluminescent** compns. comprising the dihydroxyarom. and heterocyclic enol phosphate compds. described above are also described. Methods and compns. for generating **chemiluminescence** by reaction with a **hydrolytic enzyme** are also described which employ a protected dihydroxyarom. compd. in which one of the hydroxy groups of the dihydroxyarom. compd. is protected with an **enzyme**-cleavable group. The compns. are useful in methods for producing **chemiluminescence** for use in assays of **hydrolytic enzymes** and **enzyme** inhibitors and in assays employing labeled specific **binding pairs**.

ST **enzyme** assay **chemiluminescent** compn; immunoassay
**chemiluminescent** compn; heterocyclic enol phosphate compd
**chemiluminescent** compn; dihydroxyarom compd
**chemiluminescent** compn

IT Immunoassay
(**chemiluminescence**; **chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT **Chemiluminescent** substances
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT DNA
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT Indicators
(**chemiluminescent**; **chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT Immunoassay
(**enzyme**, dot-blot; **chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT Immunoassay
(immunoblotting; **chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT 77-08-7 95-71-6 476-66-4, Ellagic acid 525-72-4 533-73-3, 1,2,4-Trihydroxybenzene 571-60-8, 1,4-Dihydroxynaphthalene 574-84-5, 7,8-Dihydroxy-6-methoxycoumarin 577-95-7, 1,2-Anthracenediol 824-46-4, 2-Methoxyhydroquinone 1079-21-6, 2-Phenylhydroquinone 1194-98-5, 2,5-Dihydroxybenzaldehyde 6626-15-9, 4-Bromoresorcinol 13066-95-0, 4-Amino-resorcinol 14918-69-5, 2,3-Dichloro-5,8-dihydroxy-1,4-naphthoquinone 17648-03-2 179803-79-3 193884-09-2 193884-14-9 193884-20-7 193884-27-4 193884-29-6 193884-33-2 193884-36-5 193884-42-3 193884-48-9 209862-52-2 209862-53-3 209862-54-4 209862-55-5 209862-56-6 209862-57-7 209862-58-8 209862-59-9 209862-60-2 209862-61-3 209862-62-4 209862-63-5 209862-64-6 209862-65-7 209862-66-8 209862-67-9 209862-68-0 209862-69-1 209862-70-4 209862-71-5
RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical study); USES (Uses)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)

IT 120-80-9, Catechol, reactions 123-31-9, 1,4-Benzenediol, reactions 615-67-8, 2-Chlorohydroquinone 771-63-1
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** reactions using dihydroxyarom. compds. and

heterocyclic enol phosphates)
IT 20368-79-0P 35119-91-6P 125095-13-8P 193884-07-0P 193884-22-9P
193884-53-6P 193884-55-8P 209862-48-6P 209862-49-7P 209862-50-0P
209862-51-1P
RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)
IT 109392-90-7P, Phenyl acridine-9-carboxylate 161006-09-3P 161006-14-0P
173407-14-2P 173407-22-2P 173407-32-4P 193884-06-9P 193884-21-8P
193884-49-0P 193884-50-3P 193884-51-4P 193884-52-5P 193884-54-7P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)
IT 64-19-7, Acetic acid, reactions 91-60-1, 2-Naphthal-enethiol 106-54-7
108-18-9, Diisopropylamine 108-95-2, Phenol, reactions 109-72-8,
n-Butyl lithium, reactions 109-78-4 110-86-1, Pyridine, reactions
333-27-7, Methyl trifluoromethanesulfonate 4111-54-0, LDA (reagent)
5336-90-3, Acridine-9-carboxylic acid 173407-41-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)
IT 66074-67-7P, Acridine-9-carbonyl chloride
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates)
IT 9001-22-3, .beta.-Glucosidase 9001-45-0, .beta.-Glucuronidase
9001-77-8, Acid phosphatase 9001-78-9, Alkaline phosphatase 9031-11-2,
.beta.-Galactosidase
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** reactions using dihydroxyarom. compds. and heterocyclic enol phosphates for assay of)
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(8) Kricka; US 5306621 1994 HCAPLUS
(9) Law; US 5595875 1997 HCAPLUS
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(16) Sasamoto, K; Chem Pharm Bull 1991, V38, P1323
(17) Schaap, A; Photochem Photobiol 1988, V47S, P50S
(18) Schaap, A; Tetrahedron Lett 1987
(19) Schaap, A; Tetrahedron Lett 1987, P1155 HCAPLUS
(20) Schaap, A; Tetrahedron Letters 1987, P1159 HCAPLUS
(21) Singh; US 5578498 1996 HCAPLUS
(22) Tsuji, A; Anal Sci 1989, V5, P497 HCAPLUS
(23) Ugarova, N; Biolum and Chemilum New Perspectives 1981, P511

L61 ANSWER 14 OF 23 HCAPLUS 
AN 1998:344578 HCAPLUS
DN 129:25385

TI **Chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**

IN Akhavan-Tafti, Hashem; Sugioka, Katsuaki; Sugioka, Yumiko; Reddy, Lekkala V.

PA Lumigen, Inc., USA

SO PCT Int. Appl., 65 pp.
CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N033-535

CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 3, **7**, 15

FAN.CNT 12

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 9821586 | A1 | 19980522 | WO 1997-US19612 | 19971107 <-- |
| | W: AU, CA, CN, JP, KR | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| | US 5843666 | A | 19981201 | US 1996-749595 | 19961115 <-- |
| | AU 9850940 | A1 | 19980603 | AU 1998-50940 | 19971107 <-- |
| | AU 726512 | B2 | 20001109 | | |
| | EP 938677 | A1 | 19990901 | EP 1997-913856 | 19971107 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| | JP 2001504226 | T2 | 20010327 | JP 1998-522595 | 19971107 <-- |
| PRAI | US 1996-749595 | A | 19961115 <-- | | |
| | US 1994-300367 | A2 | 19940902 <-- | | |
| | WO 1997-US19612 | W | 19971107 <-- | | |

OS MARPAT 129:25385

AB Methods of detecting analytes or target species using two **enzyme**-labeled specific **binding partners** where the two **enzymes** function in concert to produce a detectable **chemiluminescent** signal are disclosed. The methods use a specific **binding partner** labeled with a **hydrolytic enzyme** to produce a phenolic enhancer in close proximity to a peroxidase-labeled second specific **binding partner**. The method is useful to detect and quantitate with improved specificity various biol. mols. including antigens and antibodies by the technique of immunoassay, proteins by Western blotting, DNA by Southern blotting, RNA by Northern blotting. The method may also be used to detect DNA mutations and juxtaposed gene segments in chromosomal translocations and particularly to unambiguously identify heterozygous genotypes in a single test. Cystic fibrosis .DELTA.F508 mutation was detected by Southern transfer and hybridization using biotin-labeled oligonucleotide complementary to the normal allele and digoxigenin-labeled oligonucleotide complementary to the mutant allele, anti-digoxigenin antibody conjugated with alk. phosphatase, and avidin-horseradish peroxidase. Detection reagent contained protected horseradish peroxidase enhancer 2-naphthyl phosphate, **chemiluminescent** peroxidase **substrate** 2,3,6-trifluorophenyl 10-methylacridan-9-carboxylate, and urea peroxide, etc. A strong **chemiluminescent** signal was emitted in the heterozygous genotype while the wild type and .DELTA.F508/.DELTA.F508 genotypes were neg.

ST **chemiluminescence** assay **dual enzyme** label; alk phosphatase peroxidase label **chemiluminescence** assay; nucleic acid hybridization **dual enzyme** label; cystic fibrosis gene mutation **chemiluminescence** detection; immunoassay **chemiluminescence dual enzyme** label

IT Proteins, general, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT **Chemiluminescence** spectroscopy
Cystic fibrosis
Mutation
Nucleic acid hybridization
PCR (polymerase chain reaction)
Southern blot hybridization
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT DNA
RL: AMX (Analytical matrix); ANST (Analytical study)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Gene
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Antigens
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Peroxides, biological studies
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Antibodies
Avidins
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(conjugates, with **enzymes; chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Phenols, biological studies
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(enhancer; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Disease, animal
(genetic, recessive; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Genotypes
(heterozygosity, cystic fibrosis gene mutation; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Polyethers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(hydroxy-contg., background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Immunoassay

(immunoblotting; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Haptens
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(label; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Milk
(nonfat, background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Surfactants
(nonionic, background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Group IIIA element compounds
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(perborates; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Immunoassay
(sandwich; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Albumins, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(serum, background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Antibodies
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(specific **binding partner**; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Recombination, genetic
(translocation; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Polymers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(water-sol., background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Glycoproteins, specific or class
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(.gamma.gp120, of HIV-1; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT Human immunodeficiency virus 1
(.gamma.gp120; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 134709-72-1 207996-96-1
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(PCR primer; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding**

**partners**)

IT 9002-61-3, Human chorionic gonadotropin
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 9003-99-0D, Peroxidase, antibody conjugates 9013-20-1D, Streptavidin, **enzyme** conjugates 9027-41-2D, **Hydrolytic enzymes**, conjugates with anti-hapten antibody
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 9015-85-4, DNA ligase
RL: ARG (Analytical reagent use); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 124-43-6 7722-84-1, Hydrogen peroxide, biological studies
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 521-31-3, Luminol 1445-69-8D, hydroxy- or amino-substituted 5336-90-3D, 9-Acridinecarboxylic acid, derivs. 7607-80-9 172834-37-6 172834-40-1
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** peroxidase **substrate**; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 92-69-3P, p-Phenylphenol 103-90-2P, p-Hydroxyacetanilide 106-41-2P, p-Bromophenol 106-48-9P, p-Chlorophenol 120-83-2P, 2,4-Dichlorophenol 135-19-3P, 2-Naphthol, biological studies 500-85-6P, Phenolindophenol 540-38-5P, p-Iodophenol 939-69-5P, 2-Cyano-6-hydroxybenzothiazole 2591-17-5P, Luciferin 2975-55-5DP, ring halogenated derivs. 2975-55-5P 7400-08-0P, p-Hydroxycinnamic acid 13599-84-3P, 6-Hydroxybenzothiazole 15231-91-1P, 6-Bromo-2-naphthol 20115-09-7P, Dehydroluciferin 208039-05-8P 208039-06-9P
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(enhancer; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 9003-99-0, Peroxidase 9027-41-2, **Hydrolytic enzymes**
RL: ARG (Analytical reagent use); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**enzyme** label; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 58-85-5, Biotin 1672-46-4, Digoxigenin 2321-07-5, Fluorescein
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(hapten label; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 9001-22-3, .beta.-Glucosidase 9001-45-0, .beta.-Glucuronidase

9001-78-9, Alkaline phosphatase 9016-18-6, Carboxyl esterase
9031-11-2, .beta.-Galactosidase
RL: ARG (Analytical reagent use); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**hydrolytic enzyme** label; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 207996-94-9D, fluorescein 5'-labeled
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(labeled probe; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 207996-95-0DP, labeled with digoxigenin-dUTP
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(labeled probe; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 207996-97-2D, 5'-biotin labeled 207996-98-3D, 5'-biotin labeled
207996-99-4D, 5'-digoxigenin labeled 208057-32-3D, 3'-fluorescein
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(labeled probe; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

IT 13095-41-5, 2-Naphthyl phosphate 13388-88-0 20056-42-2 24154-09-4
46817-52-1 75966-18-6 108672-78-2 122895-84-5 129058-46-4
137015-67-9 207920-67-0 207920-68-1 207920-68-1D, ring halogenated derivs. 207920-69-2 207920-70-5 207920-71-6 208039-07-0
208039-08-1
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(protected enhancer; **chemiluminescent** detection methods using **dual enzyme**-labeled **binding partners**)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Akhavan-Tafti; US 5491072 A 1996 HCAPLUS
(2) Akhavan-Tafti; US 5686258 A 1997 HCAPLUS
(3) Kricka; US 5306621 A 1994 HCAPLUS

L61 ANSWER 15 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1998:157379 HCAPLUS
DN 128:215255
TI Preparation of acridan analogs for kits producing **light** in **chemiluminescence** assay
IN Akhavan-Tafti, Hashem; Arghavani, Zahra; Desilva, Renuka
PA Lumigen, Inc., USA
SO U.S., 19 pp., Cont.-in-part of U.S. Ser. No. 300,462, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM G01N033-535
NCL 435006000
CC **9-5 (Biochemical Methods)**
Section cross-reference(s): 27
FAN.CNT 12

| | PATENT NO. | KIND | DATE | | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|---|
| PI | US 5723295 | A | 19980303 | | US 1996-644088 | 19960509 | <-- |
| | US 5491072 | A | 19960213 | | US 1993-61810 | 19930517 | <-- |
| | US 5593845 | A | 19970114 | | US 1994-205093 | 19940302 | <-- |
| | US 5523212 | A | 19960604 | | US 1994-228290 | 19940415 | <-- |
| | JP 08500125 | T2 | 19960109 | | JP 1994-525766 | 19940516 | <-- |
| | JP 3231777 | B2 | 20011126 | | | | |
| | AU 9944594 | A1 | 19991111 | | AU 1999-44594 | 19990819 | <-- |
| | AU 733635 | B2 | 20010517 | | | | |
| PRAI | US 1993-61810 | A2 | 19930517 | <-- | | | |
| | US 1994-205093 | A2 | 19940302 | <-- | | | |
| | US 1994-228290 | A2 | 19940415 | <-- | | | |
| | US 1994-300462 | B2 | 19940902 | <-- | | | |
| | WO 1994-US5437 | W | 19940516 | <-- | | | |
| | AU 1995-34619 | A3 | 19950830 | <-- | | | |

OS MARPAT 128:215255

AB A **chemiluminescence** assay method, compns., kits and **chemiluminescent** acridan compds. are described which use a 2-step **chemiluminescent** reaction process. The reaction involves an acridan compd., preferably a deriv. of an N-alkylacridan-9-carboxylic acid, which undergoes a reaction with a peroxide compd., a peroxidase **enzyme** and an enhancer under conditions of time, temp. and pH which permit the accumulation of an intermediate compd., which is subsequently induced to produce a burst of **light** by raising the pH. The result is generation of very high intensity **light** from the reaction. The peroxidase **enzyme** is present alone or linked to a member of a specific **binding pair** in an immunoassay, DNA probe assay or other assay where the **hydrolytic enzyme** is bound to a reporter mol. The method is particularly amenable to automated assays because of the sepn. of the incubation and **light** generating steps. Thus, 2',3',6'-trifluorohenyl 4-chloro-3-methoxy-10-methylacridan-9-carboxylate was prepd. from 3-methoxyacridinecarboxylic acid by a series of reactions.

ST acridan analog **chemiluminescence** assay prepn; DNA detection chemilumescence acridan analog prepn

IT Immunoassay
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescence**; prepn. of acridan analogs for kits producing **light** in chemilumescence assay)

IT Antibodies
Antigens
DNA
Haptens
Nucleic acid hybridization
RL: ANT (Analyte); ANST (Analytical study)
(prepn. of acridan analogs for kits producing **light** in chemilumescence assay)

IT Nucleic acids
RL: ANT (Analyte); ANST (Analytical study)
(prepn. of acridan analogs for kits producing **light** in **chemiluminescence** assay)

IT 9003-99-0, Peroxidase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(horseradish; prepn. of acridan analogs for kits producing **light** in **chemiluminescence** assay)

IT 177535-21-6DP, dichlorinated 177535-21-6P 177535-23-8P 177535-24-9P 177535-25-0P 197156-16-4P 197156-17-5P 197156-18-6P 197156-19-7P 197156-20-0P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(prepn. of acridan analogs for kits producing **light** in **chemiluminescence** assay)

IT 177535-43-2P 177535-46-5P
RL: BYP (Byproduct); PREP (Preparation)
(prepn. of acridan analogs for kits producing **light** in **chemiluminescence** assay)
IT 95-78-3 101-16-6 101-17-7 102-56-7 371-42-6 1205-64-7
2398-37-0 50868-72-9 92248-06-1 113798-74-6 172834-71-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of acridan analogs for kits producing **light** in **chemiluminescence** assay)
IT 2050-44-4P 3467-59-2P 32446-14-3P 33264-65-2P 42595-25-5P
50868-75-2P 130266-60-3P 154471-37-1P 177535-32-9P 177535-34-1P
177535-37-4P 177535-39-6P 177535-40-9P 177535-41-0P 177535-42-1P
177535-44-3P 177535-45-4P 197156-21-1P 197156-22-2P 197156-23-3P
197156-24-4P 197156-25-5P 197156-26-6P 197156-27-7P 197156-28-8P
197156-29-9P 197156-30-2P 197156-31-3P 197156-32-4P 197156-33-5P
197156-34-6P 204326-59-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of acridan analogs for kits producing **light** in **chemiluminescence** assay)

L61 ANSWER 16 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1997:735880 HCAPLUS
DN 128:11617
TI **Chemiluminescent** detection of **hydrolytic enzymes** using an acridan
IN Akhavan-Tafti, Hashem; Arghavani, Zahra; DeSilva, Renuka
PA Lumigen, Inc., USA
SO U.S., 10 pp., Cont.-in-part of U.S. Ser. No. 205,093.
CODEN: USXXAM
DT Patent
LA English
IC ICM G01N033-535
NCL 435007910
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 3, **7**
FAN.CNT 12

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 5686258 | A | 19971111 | US 1994-300367 | 19940902 <-- |
| | US 5491072 | A | 19960213 | US 1993-61810 | 19930517 <-- |
| | US 5593845 | A | 19970114 | US 1994-205093 | 19940302 <-- |
| | US 5523212 | A | 19960604 | US 1994-228290 | 19940415 <-- |
| | JP 08500125 | T2 | 19960109 | JP 1994-525766 | 19940516 <-- |
| | JP 3231777 | B2 | 20011126 | | |
| | CA 2197668 | AA | 19960314 | CA 1995-2197668 | 19950830 <-- |
| | WO 9607911 | A1 | 19960314 | WO 1995-US10952 | 19950830 <-- |
| | W: AU, CA, CN, FI, JP, KR | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| | AU 9535411 | A1 | 19960327 | AU 1995-35411 | 19950830 <-- |
| | AU 707682 | B2 | 19990715 | | |
| | EP 778947 | A1 | 19970618 | EP 1995-932341 | 19950830 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, SE | | | | |
| | JP 10505495 | T2 | 19980602 | JP 1995-509550 | 19950830 <-- |
| | US 5843666 | A | 19981201 | US 1996-749595 | 19961115 <-- |
| PRAI | US 1993-61810 | A2 | 19930517 <-- | | |
| | US 1994-205093 | A2 | 19940302 <-- | | |
| | US 1994-228290 | A2 | 19940415 <-- | | |
| | WO 1994-US5437 | W | 19940516 <-- | | |
| | US 1994-300367 | A | 19940902 <-- | | |
| | WO 1995-US10952 | W | 19950830 <-- | | |

AB A **chemiluminescent** assay method, compns., and kits are described which use a protected phenolic enhancer compd. which is deprotected by a

**hydrolytic enzyme** and then enhances a **chemiluminescent** reaction. The reaction involves an acridan compd., preferably a deriv. of an N-alkyl acridan-9-carboxylic acid, which is activated to produce **light** by a peroxide compd. and a peroxidase **enzyme** in the presence of the deprotected enhancer. The result is enhanced generation of **light** from the reaction. The **hydrolytic enzyme** is present alone or linked to a member of a specific **binding pair** in an immunoassay, DNA probe assay, or other assay where the **hydrolytic enzyme** is bound to a reporter mol.

ST **hydrolytic enzyme** detection **chemiluminescence** acridan; peroxidase **chemiluminescence** assay hydrolase detection

IT Immunoassay
(**chemiluminescence**; **hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT Biochemical molecules
(hydrolase conjugates; **hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT Antibodies
Antigens
Haptens
Nucleic acids
Oligonucleotides
Proteins, general, analysis
RL: ANT (Analyte); ANST (Analytical study)
(hydrolase conjugates; **hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT **Chemiluminescence** spectroscopy
DNA sequence analysis
Nucleic acid hybridization
Southern blot hybridization
Test kits
(**hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT DNA
Peroxides, analysis
Proteins, general, analysis
RL: ANT (Analyte); ANST (Analytical study)
(**hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT Immunoassay
(immunoblotting; **hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT 9001-78-9D, conjugates 9027-41-2, Hydrolase 9027-41-2D, Hydrolase, conjugates 9031-11-2, .beta.-Galactosidase
RL: ANT (Analyte); ANST (Analytical study)
(**hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT 92-81-9D, Acridan, derivs. 9003-99-0, Peroxidase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT 172834-40-1P 197156-36-8DP, N-alkyl, derivs.
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(**hydrolytic enzymes** detection by **chemiluminescence** using acridan compd.)

IT 75-36-5, Acetyl chloride 92-69-3, p-Phenylphenol 333-27-7 540-38-5, p-Iodophenol 5336-90-3, Acridine 9-carboxylic acid 10025-87-3, Phosphoric trichloride 19285-38-2 113798-74-6, 2,3,6-Trifluorophenol 172834-71-8, 3-Methoxyacridine-9-carboxylic acid

RL: RCT (Reactant); RACT (Reactant or reagent)
(**hydrolytic enzymes** detection by
**chemiluminescence** using acridan compd.)

IT 101685-91-0P 172834-37-6P 172834-61-6P 172834-67-2P 172834-72-9P
199105-41-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(**hydrolytic enzymes** detection by
**chemiluminescence** using acridan compd.)

IT 148-86-7P, p-Phenylphenol acetate 34261-83-1P 101686-07-1P
137015-68-0P 145874-99-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(**hydrolytic enzymes** detection by
**chemiluminescence** using acridan compd.)

L61 ANSWER 17 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1997:636220 HCAPLUS
DN 127:305048
TI Acridan compounds
IN Akhavan-Tafti, Hashem; Arghavani, Zahra; Desilva, Renuka
PA Lumigen, Inc., USA
SO U.S., 18 pp., Cont.-in-part of U.S. Ser. No. 300,462.
CODEN: USXXAM
DT Patent
LA English
IC ICM C07D285-38
ICS C07D295-00; G01N033-533; G01N033-532
NCL 546103000
CC **9-14** (**Biochemical Methods**)
Section cross-reference(s): 3, 15, 27, 80
FAN.CNT 12

| | PATENT NO. | KIND | DATE | | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|---|
| PI | US 5670644 | A | 19970923 | | US 1996-647383 | 19960509 | <-- |
| | US 5491072 | A | 19960213 | | US 1993-61810 | 19930517 | <-- |
| | US 5593845 | A | 19970114 | | US 1994-205093 | 19940302 | <-- |
| | US 5523212 | A | 19960604 | | US 1994-228290 | 19940415 | <-- |
| | JP 08500125 | T2 | 19960109 | | JP 1994-525766 | 19940516 | <-- |
| | JP 3231777 | B2 | 20011126 | | | | |
| | AU 9944594 | A1 | 19991111 | | AU 1999-44594 | 19990819 | <-- |
| | AU 733635 | B2 | 20010517 | | | | |
| PRAI | US 1993-61810 | A2 | 19930517 | <-- | | | |
| | US 1994-205093 | A2 | 19940302 | <-- | | | |
| | US 1994-228290 | A2 | 19940415 | <-- | | | |
| | US 1994-300462 | A2 | 19940902 | <-- | | | |
| | WO 1994-US5437 | W | 19940516 | <-- | | | |
| | AU 1995-34619 | A3 | 19950830 | <-- | | | |

OS MARPAT 127:305048
AB A **chemiluminescent** assay method, compns., kits, and **chemiluminescent** acridan compds. are described which use a 2-step **chemiluminescent** reaction process. The reaction involves an acridan compd., preferably a deriv. of an N-alkyl acridan-9-carboxylic acid, which undergoes a reaction with a peroxide compd., a peroxidase **enzyme**, and an enhancer under conditions of time, temp., and pH which permit the accumulation of an intermediate compd., which is subsequently induced to produce a burst of **light** by raising the pH. The result is generation of very-high-intensity **light** from the reaction. The peroxidase **enzyme** is present alone or linked to a member of a specific **binding pair** in an immunoassay, DNA probe assay, or other assay where the **hydrolytic enzyme** is bound to a reporter mol. The method is particularly amenable to automated assays because of the sepn. of the incubation and **light**-generating steps.

ST acridan compd prepn **chemiluminescence enzymic** assay; peroxidase detn alkyl acridancarboxylate **chemiluminescence**

IT **Chemiluminescence** spectroscopy
Nucleic acid hybridization
Test kits
(acridan compds. prepn. for **chemiluminescence** assays)

IT Antibodies
Antigens
DNA
Haptens
Nucleic acids
Proteins, general, analysis
RNA
RL: ANT (Analyte); ANST (Analytical study)
(acridan compds. prepn. for **chemiluminescence** assays)

IT Peroxides, reactions
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(acridan compds. prepn. for **chemiluminescence** assays)

IT Onium compounds
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(acridinium; acridan compds. prepn. for **chemiluminescence** assays)

IT Surfactants
(anionic; acridan compds. prepn. for **chemiluminescence** assays)

IT Immunoassay
(**chemiluminescence**; acridan compds. prepn. for **chemiluminescence** assays)

IT Immunoassay
(**enzyme**; acridan compds. prepn. for **chemiluminescence** assays)

IT Surfactants
(nonionic; acridan compds. prepn. for **chemiluminescence** assays)

IT 9035-73-8, Oxidase 9035-82-9, Dehydrogenase
RL: ANT (Analyte); ANST (Analytical study)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 9003-99-0, Peroxidase
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 106-41-2, p-Bromophenol 124-43-6 135-19-3, 2-Naphthol, uses 540-38-5, p-Iodophenol 719-54-0, N-Methylacridone 5122-99-6, 4-Iodophenylboronic acid 7400-08-0, p-Hydroxycinnamic acid 7632-04-4, Sodium perborate 7722-84-1, Hydrogen peroxide, uses 15231-91-1, 6-Bromo-2-naphthol 130897-36-8 172834-33-2 172834-43-4
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 92-81-9DP, Acridan, derivs. 177535-21-6P 177535-23-8P 177535-24-9P 177535-25-0P 197156-16-4P 197156-17-5P 197156-18-6P 197156-19-7P 197156-20-0P 197156-35-7P 197156-36-8DP, N-alkyl 197256-32-9P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 60-00-4, EDTA, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 79-37-8, Oxalyl chloride 95-78-3, 2,5-Dimethylaniline 98-59-9, p-Toluenesulfonyl chloride 101-16-6, 3-Methoxydiphenylamine 101-17-7, 3-Chlorodiphenylamine 102-56-7, 2,5-Dimethoxyaniline 108-95-2, Phenol, reactions 333-27-7, Methyl triflate 371-42-6, 4-Fluorothiophenol

1205-64-7, 3-Methyldiphenylamine 2398-37-0, 3-Bromoanisole 3467-59-2
33264-65-2 50868-72-9, 5-Methoxy-2-methylaniline 92248-06-1,
Bis(3-methoxyphenyl)amine 113798-74-6, 2,3,6-Trifluorophenol
RL: RCT (Reactant); RACT (Reactant or reagent)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 2050-44-4P, 2,5-Dimethylacetanilide 32446-14-3P 42595-25-5P,
3-Chloroacridine-9-carboxylic acid 50868-75-2P 130266-60-3P,
3-Methylacridine-9-carboxylic acid 154471-37-1P, 1-Methylacridine-9-carboxylic acid 172834-71-8P 177535-29-4P 177535-32-9P
177535-33-0P 177535-37-4P 177535-38-5P 177535-40-9P 177535-41-0P
177535-42-1P 177535-44-3P 177535-45-4P 178920-79-1P 197156-21-1P
197156-22-2P 197156-23-3P 197156-24-4P 197156-25-5P 197156-26-6P
197156-27-7P 197156-28-8P 197156-29-9P 197156-30-2P 197156-31-3P
197156-32-4P 197156-33-5P 197156-34-6P 197256-33-0P 197256-34-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(acridan compds. prepn. for **chemiluminescence** assays)

IT 172834-72-9P 177535-43-2P 177535-46-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(acridan compds. prepn. for **chemiluminescence** assays)

L61 ANSWER 18 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1996:444140 HCAPLUS
DN 125:81269
TI **Chemiluminescent** dialkyl-substituted 1,2-dioxetane compounds, methods of synthesis and use
IN Schaap, Arthur Paul; Akhavan-Tafti, Hashem
PA Lumigen, Inc., USA
SO PCT Int. Appl., 82 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C09K003-00
ICS C12Q001-00; C07F009-06; C07D305-00; C07C069-76; C07C069-00; C07C041-00
CC **9-5 (Biochemical Methods)**
Section cross-reference(s): 3, 15, 28
FAN.CNT 1

| | PATENT NO. | KIND | DATE | | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|---|
| PI | WO 9616137 | A1 | 19960530 | | WO 1995-US14193 | 19951102 | <-- |
| | W: AU, CA, CN, FI, JP, KR | | | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | | |
| | US 5578253 | A | 19961126 | | US 1994-344124 | 19941123 | <-- |
| | CA 2203160 | AA | 19960530 | | CA 1995-2203160 | 19951102 | <-- |
| | AU 9641419 | A1 | 19960617 | | AU 1996-41419 | 19951102 | <-- |
| | AU 684409 | B2 | 19971211 | | | | |
| | EP 794987 | A1 | 19970917 | | EP 1995-939701 | 19951102 | <-- |
| | EP 794987 | B1 | 20020925 | | | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | | | |
| | JP 10509456 | T2 | 19980914 | | JP 1995-516892 | 19951102 | <-- |
| | AT 224938 | E | 20021015 | | AT 1995-939701 | 19951102 | <-- |
| | US 5886238 | A | 19990323 | | US 1996-704074 | 19960828 | <-- |
| | AU 9736771 | A1 | 19971211 | | AU 1997-36771 | 19970902 | <-- |
| | AU 724148 | B2 | 20000914 | | | | |
| | AU 9736770 | A1 | 19980122 | | AU 1997-36770 | 19970902 | <-- |
| | AU 700925 | B2 | 19990114 | | | | |
| | US 5892064 | A | 19990406 | | US 1997-978800 | 19971126 | <-- |
| | US 6284899 | B1 | 20010904 | | US 1997-999930 | 19971128 | <-- |
| PRAI | US 1994-344124 | A | 19941123 | <-- | | | |
| | WO 1995-US14193 | W | 19951102 | <-- | | | |
| | US 1996-703973 | B1 | 19960828 | <-- | | | |

OS MARPAT 125:81269

AB A **chemiluminescent** assay method and compns. are described which use a dialkyl-substituted dioxetane which is deprotected to trigger a **chemiluminescent** reaction. **Chemiluminescent** 1,2-dioxetane compds. substituted on the dioxetane ring with 2 nonspirofused alkyl groups which can be triggered by a reagent to generate **light** are disclosed. Dialkyl-substituted dioxetanes are useful for the detection of triggering agents including **enzymes**. The **enzyme** may be present alone or linked to a member of a specific **binding pair** in an immunoassay, DNA probe assay, or other assay where the **enzyme** is bound to a reporter mol.

ST **chemiluminescence** assay dialkyl substituted dioxetane synthesis; immunoassay **chemiluminescence** dialkyl substituted dioxetane

IT **Fluorescence**
**Luminescence, chemi-**
Nucleic acid hybridization
Polymer-supported reagents
Surfactants
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Antibodies
Antigens
Deoxyribonucleic acids
Haptens
Nucleic acids
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT **Enzymes**
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Alkali metals, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Polymers, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(polyvinylbenzyltrialkylphosphonium group-contg.; **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Genetic methods
(DNA fingerprinting, **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Immunoassay
Spectrochemical analysis
(**chemiluminescence, chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Immunoassay
(immunoblotting, **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Nucleotides, analysis
RL: ANT (Analyte); ANST (Analytical study)
(oligo-, **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Quaternary ammonium compounds, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(polymers, surfactants; **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Quaternary ammonium compounds, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(tetraalkyl, alkoxides, **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

IT Quaternary ammonium compounds, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(tetraalkyl, hydroxides, **chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 9001-78-9
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 302-01-2, Hydrazine, uses 429-41-4, Tetra-n-butylammonium fluoride 1310-58-3, Potassium hydroxide, uses 16984-48-8, Fluoride, uses 26628-22-8, Sodium azide 151346-37-1 151346-38-2 178804-82-5
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 6788-84-7DP, 1,2-Dioxetane, derivs. 111807-83-1P 124951-96-8P 163342-81-2P 163396-60-9P 172024-15-6P 178804-63-2P 178804-65-4P 178804-67-6P 178804-69-8P 178804-72-3P 178804-74-5P 178804-76-7P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 67-68-5, DMSO, analysis 68-12-2, DMF, analysis 75-05-8, Acetonitrile, analysis 123-91-1, p-Dioxane, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 133914-83-7
RL: PRP (Properties)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 61-73-4, Methylene blue 75-36-5, Acetyl chloride 98-88-4, Benzoyl chloride 109-78-4, 2-Cyanoethanol 119-60-8, Dicyclohexyl ketone 565-80-0 623-25-6, .alpha.,.alpha.'-Dichloro-p-xylene 998-40-3, Tri-n-butylphosphine 1121-37-5, Dicyclopropyl ketone 3282-30-2, Pivaloyl chloride 4731-53-7, Tri-n-octylphosphine 10025-87-3, Phosphorus oxychloride 11121-48-5, Rose bengal 120687-94-7, Methyl 3-tert-butyldimethylsilyloxybenzoate
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)
IT 163342-74-3P 163396-56-3P 172024-42-9P 178804-52-9P 178804-53-0P 178804-54-1P 178804-56-3P 178804-58-5P 178804-60-9P 178804-61-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescent** dialkyl-substituted 1,2-dioxetane compds. synthesis and anal. use)

L61 ANSWER 19 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1996:350342 HCAPLUS
DN 125:29590
TI **Chemiluminescent** assay utilizing an acridan and peroxidase
IN Akhaven-Tafti, Hashem; Arghavani, Zahra; Desilva, Renuka
PA Lumigen, Inc., USA
SO PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-535
ICS C07D219-04
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 27
FAN.CNT 12
PATENT NO. KIND DATE APPLICATION NO. DATE

| | | | | | | |
|---|---|---|---|---|---|---|
| PI | WO 9607912 | A1 | 19960314 | WO 1995-US11031 | 19950830 | <-- |
| | W: AU, CA, CN, FI, JP, KR | | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | |
| | CA 2197669 | AA | 19960314 | CA 1995-2197669 | 19950830 | <-- |
| | AU 9534619 | A1 | 19960327 | AU 1995-34619 | 19950830 | <-- |
| | EP 778946 | A1 | 19970618 | EP 1995-931030 | 19950830 | <-- |
| | EP 778946 | B1 | 20021023 | | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, SE | | | | | |
| | CN 1161083 | A | 19971001 | CN 1995-195266 | 19950830 | <-- |
| | JP 10508191 | T2 | 19980818 | JP 1995-509567 | 19950830 | <-- |
| | AT 226728 | E | 20021115 | AT 1995-931030 | 19950830 | <-- |
| | AU 9944594 | A1 | 19991111 | AU 1999-44594 | 19990819 | <-- |
| | AU 733635 | B2 | 20010517 | | | |
| PRAI | US 1994-300462 | A | 19940902 | <-- | | |
| | AU 1995-34619 | A3 | 19950830 | <-- | | |
| | WO 1995-US11031 | W | 19950830 | <-- | | |

OS MARPAT 125:29590

AB A **chemiluminescent** assay method utilizes a 2-step **chemiluminescent** reaction involving an acridan prepd. by using std. reactions. In particular, a N-alkylacridan-9-carboxylic acid deriv. undergoes a reaction with a peroxide compd., a peroxidase **enzyme** and an enhancer, which permit the accumulation of an intermediate which is subsequently induced to produce a burst of **light** by raising the pH. The result is a generation of very high intensity **light** from the reaction. The peroxidase **enzyme** is present alone or linked to a member of a specific **binding pair** in an immunoassay, DNA probe assay or other assay where the **hydrolytic enzyme** is bound to a reporter mol. The method is particularly amenable to automated assay because of the sepn. of the incubation and **light** generating steps.

ST acridan peroxidase peroxide **chemiluminescence** prepn

IT Spectrochemical analysis
(**chemiluminescence**, **chemiluminescent** assay utilizing acridan compd. and peroxidase)

IT 106-41-2, p-Bromophenol 124-43-6, Urea peroxide 135-19-3, 2-Naphthol, uses 540-38-5, p-Iodophenol 5122-99-6, 4-Iodophenylboronic acid 7400-08-0, p-Hydroxycinnamic acid 7722-84-1, Hydrogen peroxide, uses 9003-99-0, Peroxidase 15231-91-1, 6-Bromo-2-naphthol
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**chemiluminescent** assay utilizing acridan compd. and peroxidase)

IT 172834-40-1P 177535-19-2P 177535-20-5P 177535-21-6P 177535-22-7P 177535-23-8P 177535-24-9P 177535-25-0P
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** assay utilizing acridan compd. and peroxidase)

IT 101-16-6, 3-Methoxydiphenylamine 371-42-6, 4-Fluorothiophenol 42595-25-5 113798-74-6, 2,3,6-Trifluorophenol 130266-60-3 154471-37-1 173407-17-5 177535-30-7 177535-31-8 177535-42-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemiluminescent** assay utilizing acridan compd. and peroxidase)

IT 172834-54-7P 172834-70-7P 172834-71-8P 172834-72-9P 177535-26-1P 177535-27-2P 177535-28-3P 177535-29-4P 177535-32-9P 177535-34-1P 177535-35-2P 177535-36-3P 177535-37-4P 177535-39-6P 177535-40-9P 177535-41-0P 177535-43-2P 177535-44-3P 177535-45-4P 177535-46-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescent** assay utilizing acridan compd. and peroxidase)

L61 ANSWER 20 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN 1996:350341 HCAPLUS
DN 125:29589
TI **Chemiluminescent** detection of **hydrolytic enzymes** using an acridan
IN Akhaven-Tafti, Hashem; Arghavani, Zahra; Desilva, Renuka
PA Lumigen, Inc., USA
SO PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-535
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): **7**, 27
FAN.CNT 12

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 9607911 | A1 | 19960314 | WO 1995-US10952 | 19950830 <-- |
| | W: AU, CA, CN, FI, JP, KR | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| | US 5686258 | A | 19971111 | US 1994-300367 | 19940902 <-- |
| | AU 9535411 | A1 | 19960327 | AU 1995-35411 | 19950830 <-- |
| | AU 707682 | B2 | 19990715 | | |
| | EP 778947 | A1 | 19970618 | EP 1995-932341 | 19950830 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, SE | | | | |
| | JP 10505495 | T2 | 19980602 | JP 1995-509550 | 19950830 <-- |
| PRAI | US 1994-300367 | A | 19940902 <-- | | |
| | US 1993-61810 | A2 | 19930517 <-- | | |
| | US 1994-205093 | A2 | 19940302 <-- | | |
| | US 1994-228290 | A2 | 19940415 <-- | | |
| | WO 1995-US10952 | W | 19950830 <-- | | |

OS MARPAT 125:29589
AB A **chemiluminescent** assay method, compns. and kits are described which use a protected phenolic enhancer which is deprotected by a **hydrolytic enzyme** and then enhances a **chemiluminescent** reaction. The reaction involves an acridan, preferably a N-alkyl-acridan-9-carboxylic acid deriv., which is prepd. and activated to produce **light** by a peroxide and a peroxidase **enzyme** in the presence of the deprotected enhancer. The result is enhanced generation of **light** from the reaction. The **hydrolytic enzyme** is present alone or linked to a member of a specific **binding pair** in an immunoassay, DNA probe assay or other assay where the **hydrolytic enzyme** is bound to a reporter mol.
ST **chemiluminescence** detection **hydrolytic enzyme** acridan prepn
IT Immunoassay
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT Antibodies
Antigens
Haptens
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT Spectrochemical analysis
(**chemiluminescence**, **chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT Nucleotides, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(oligo-, **chemiluminescent** detection of **hydrolytic enzymes** using acridan)

IT 9001-78-9, Alkaline phosphatase 9027-41-2, **Hydrolytic enzymes** 9031-11-2, .beta.-Galactosidase
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT 9003-99-0, Peroxidase
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT 148-86-7P 34261-83-1P 137015-68-0P 145874-99-3P 145875-00-9P 172834-37-6P 172834-40-1P
RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT 92-69-3, p-Phenylphenol 101-16-6, 3-Methoxydiphenylamine 540-38-5, p-Iodophenol 3068-32-4 5336-90-3, 9-Acridinecarboxylic acid 113798-74-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)
IT 172834-54-7P 172834-61-6P 172834-67-2P 172834-70-7P 172834-71-8P 172834-72-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemiluminescent** detection of **hydrolytic enzymes** using acridan)

L61 ANSWER 21 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN **1993:76602** HCAPLUS
DN **118:76602**
TI **Chemiluminescent** method and compositions using protected enhancer compounds
IN Akhavan-Tafti, M. Hashem
PA Lumigen, Inc., USA
SO Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM G01N021-76
ICS C12Q001-28; C12Q001-34; C12Q001-68; G01N033-53; C12Q001-42; C12Q001-44; G01N033-58
ICA G01N033-535; G01N033-68
CC **9-5 (Biochemical Methods)**
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | EP 516948 | A1 | 19921209 | EP 1992-106544 | 19920415 | <-- |
| | EP 516948 | B1 | 20000531 | | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, PT, SE | | | | | |
| | CA 2061189 | AA | 19921125 | CA 1992-2061189 | 19920213 | <-- |
| | AU 9214769 | A1 | 19921203 | AU 1992-14769 | 19920409 | <-- |
| | AU 656572 | B2 | 19950209 | | | |
| | JP 05115300 | A2 | 19930514 | JP 1992-94537 | 19920414 | <-- |
| | JP 07073515 | B4 | 19950809 | | | |
| | AT 193602 | E | 20000615 | AT 1992-106544 | 19920415 | <-- |
| | CN 1067257 | A | 19921223 | CN 1992-103938 | 19920521 | <-- |
| PRAI | US 1991-705322 | A | 19910524 | <-- | | |

OS MARPAT 118:76602
AB A **chemiluminescent** method uses a protected enhancer which is triggered by a **hydrolytic enzyme** and then enhances a

**chemiluminescent** reaction. The protected enhancer has a formula of ArOX wherein X is a leaving group which is reactive with the **hydrolytic enzyme** and Ar is a non-interfering arom. group which can contain C; O; S or N in the ring. The **chemiluminescent** reaction involves an amino substituted acylhydrazide which is activated to produce **light** by a peroxide and a peroxidase in the presence of the activated enhancer. The result is enhanced generation of **light** from the reaction. The **hydrolytic enzyme** is present alone or as a label in an immunoassay, DNA probe assay, or other assay wherein the **hydrolytic enzyme** is bound to a reporter mol. Human transferrin was measured by Western blot using alk. phosphatase-antibody conjugate, H2O2, luminol, p-phenylphosphate, horseradish peroxidase-IgG. The assay allowed the measurement of 500 fg transferrin/slot.

ST **chemiluminescence** assay protected enhancer hydrolase; phenol protected enhancer **chemiluminescence** assay

IT Surfactants
Proteins, uses
RL: USES (Uses)
(as suppressing agent in **chemiluminescence** assay using **hydrolytic enzyme** and protected enhancer)

IT Nucleic acid hybridization
(**chemiluminescence** assay, **hydrolytic enzyme** and protected enhancer in)

IT Antibodies
Antigens
Nucleic acids
RL: ANST (Analytical study)
(conjugates with **hydrolytic enzyme**, in **chemiluminescent** assay using protected enhancer compds.)

IT Transferrins
RL: ANST (Analytical study)
(detn. of human, by Western blot, **chemiluminescence** with alk. phosphatase-antibody conjugate and phenylphenol phosphate as protected enhancer in)

IT Hydrazides
RL: ANST (Analytical study)
(acyl, amino-substituted, in **chemiluminescent** assay using protected enhancer compds.)

IT Chemical compounds
RL: ANST (Analytical study)
(biol., conjugates with **hydrolytic enzyme**, in **chemiluminescent** assay using protected enhancer compds.)

IT Spectrochemical analysis
(**chemiluminescence**, **hydrolytic enzyme** and protected enhancer in)

IT Immunoassay
(**chemiluminescence enzyme**, **hydrolytic enzyme** and protected enhancer in)

IT Peroxides, compounds
RL: ANST (Analytical study)
(compds., in **chemiluminescent** assay using protected enhancer)

IT Immunoassay
(immunoblotting, transferrin of human detn. by, **chemiluminescence** with alk. phosphatase-antibody conjugate and phenylphenol phosphate as protected enhancer in)

IT 46817-52-1, p-Phenylphenol phosphate 137015-67-9
RL: ANST (Analytical study)
(as protected enhancer in **chemiluminescence** assay for alk. phosphatase detection)

IT 9001-78-9, Alkaline phosphatase 9013-79-0, Esterase 9027-41-2, Hydrolase 9031-11-2, .beta.-Galactosidase
RL: ANT (Analyte); ANST (Analytical study)

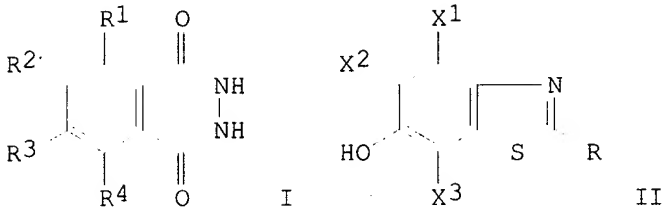
(detection of, by **chemiluminescent** assay, protected enhancer activation in)
IT 9027-41-2D, Hydrolase, conjugates
RL: ANT (Analyte); ANST (Analytical study)
(detection of, in **chemiluminescent** assay, protected enhancer activation in)
IT 521-31-3, Luminol 7722-84-1, Hydrogen peroxide, uses
RL: ANST (Analytical study)
(in **chemiluminescence** assay for alk. phosphatase detection using phenylphenol phosphate as protected enhancer)
IT 9003-99-0, Peroxidase
RL: ANST (Analytical study)
(in **chemiluminescent** assay using protected enhancer compds.)
IT 9001-78-9D, antibodies conjugates
RL: ANST (Analytical study)
(in transferrins of human detn. by Western blot and **chemiluminescence** using phenylphenol phosphate as protected enhancer)
IT 148-86-7P, p-Phenylphenol acetate 34261-83-1P, p-Phenylphenol phosphate, disodium salt 137015-68-0P, p-Iodophenylphosphate, disodium salt 145874-99-3P, p-Iodophenyl-.beta.-galactopyranoside 145875-00-9P, p-Phenylphenol-.beta.-galactopyranoside
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as protected enhancer for **chemiluminescence** assay for **hydrolytic enzyme**)
IT 92-69-3, p-Phenylphenol 540-38-5, p-Iodophenol
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, for prepg. protected enhancer for **chemiluminescence** assay for **hydrolytic enzyme**
)
IT 3068-32-4, Acetobromogalactose
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with iodophenol, for protected enhancer prepn. for **chemiluminescence** assay for **hydrolytic enzyme**
)

L61 ANSWER 22 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN **1987:172474** HCAPLUS
DN **106:172474**
TI **Chemiluminescence** prolonged with nitrogen compounds for use in immunoassays, nucleotide probes, and test kits, and a device
IN Dattagupta, Nanibhushan; Clemens, Anton H.
PA Molecular Diagnostics, Inc., USA
SO Eur. Pat. Appl., 100 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM G01N033-52
ICS G01N033-53; C12Q001-68
ICA G01N033-58; C12Q001-66
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): **7**, 15, 28
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | EP 210449 | A2 | 19870204 | EP 1986-108890 | 19860630 | <-- |
| | EP 210449 | A3 | 19870902 | | | |
| | EP 210449 | B1 | 19930728 | | | |
| | R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE | | | | | |
| | US 4794073 | A | 19881227 | US 1985-753734 | 19850710 | <-- |
| | US 4853327 | A | 19890801 | US 1985-753739 | 19850710 | <-- |
| | CA 1307480 | A1 | 19920915 | CA 1986-511781 | 19860617 | <-- |
| | AU 8659402 | A1 | 19870115 | AU 1986-59402 | 19860630 | <-- |

| | | | | | | |
|---|---|---|---|---|---|---|
| | AU 593806 | B2 | 19900222 | | | |
| | AT 92188 | E | 19930815 | AT 1986-108890 | 19860630 | <-- |
| | FI 8602886 | A | 19870111 | FI 1986-2886 | 19860708 | <-- |
| | DK 8603268 | A | 19870111 | DK 1986-3268 | 19860709 | <-- |
| | ZA 8605115 | A | 19870527 | ZA 1986-5115 | 19860709 | <-- |
| | ES 2000660 | A6 | 19880316 | ES 1986-220 | 19860709 | <-- |
| | JP 62124446 | A2 | 19870605 | JP 1986-162929 | 19860710 | <-- |
| | JP 2553519 | B2 | 19961113 | | | |
| | US 4950588 | A | 19900821 | US 1988-250985 | 19880927 | <-- |
| PRAI | US 1985-753734 | | 19850710 | <-- | | |
| | US 1985-753739 | | 19850710 | <-- | | |
| | US 1985-753749 | | 19850710 | <-- | | |
| | US 1986-840636 | | 19860320 | <-- | | |
| | EP 1986-108890 | | 19860630 | <-- | | |


GI





AB A **chemiluminescence** (CL) process comprises contacting a CL precursor 2,3-dihydro-1,4-phthalazinedione I (R1, R2 = NH2; R1, R2, R3, R4 = H, (un)substituted C1-6 alkyl or alkenyl or alkoxy, OH, CO2H, NH2; R1R2 = (un)substituted amino benzo-group deriv.), an oxidant, and an **enzyme** in the presence of a N compd. (e.g. NH3, water-sol. org. amine) which prolongs the duration and increases the intensity of the **light** emitted. A CL enhancer, phenol derivs. or 6-hydroxybenzothiazoles II (R = H, CN, (un)substituted thiazole; X1, X2, X3 = H, (un)substituted C1-6 alkyl or alkenyl or alkoxy, (un)substituted OH, CO2H, (un)substituted NH2), may also be added. The CL reaction is used in the detection of nucleic acids, antibodies, antigens, and peroxidase and in **light** prodn. Test kits and devices are also disclosed. Adenoviral DNA or pBR322 probe and aminomethyl angelicin (as photoreactive intercalator) were irradiated to form a covalent **complex** which was then reacted with N-hydroxysuccinimidobiotin to form the biotinylated hybridization probe. The probe was used in a dot-blot assay. DNA was detected by CL using streptavidin, biotinylated horseradish peroxidase, luminol and H2O2. Ammonium acetate in the buffer prolonged the CL reaction.


ST **chemiluminescence** stabilization nitrogen compd nucleotide probe; immunoassay ammonia stabilization **chemiluminescence**; **enzyme** assay amine stabilization **chemiluminescence**; DNA hybridization probe ammonium **chemiluminescence**

IT Amines, biological studies
RL: BIOL (Biological study)
(**chemiluminescence** stabilization with, nucleotide hybridization probe and other assays)

IT Antibodies
Antigens
RL: ANT (Analyte); ANST (Analytical study)
(detection of, by ammonia and amine-stabilized **chemiluminescence** assay)

IT **Enzymes**

RL: ANST (Analytical study)
(detn. of and use in ammonia and amine-stabilized **chemiluminescence** assay)

IT Nucleic acid hybridization
(in ammonia and amine-stabilized **chemiluminescence** assay)

IT Oxidizing agents
(in ammonia and amine-stabilized **chemiluminescence** nucleotide hybridization probe and other assays)

IT **Luminescence, chemi-**
(stabilization of, with ammonia and amines for nucleotide hybridization probe and other assays)

IT Amines, biological studies
RL: BIOL (Biological study)
(water-sol., **chemiluminescence** stabilization with, nucleotide hybridization probe and other assays)

IT Hemoglobins
RL: SPN (Synthetic preparation); PREP (Preparation)
(.beta. chain of, sickle cell anemia-specifying oligonucleotide of, for **chemiluminescence** hybridization probe prepn.)

IT Immunoglobulins
RL: PROC (Process)
(G, to rubella virus, detection of, of human, by ammonia and amine-stabilized **chemiluminescence** ELISA)

IT Virus, animal
(adeno-, DNA of, in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

IT Amines, uses and miscellaneous
RL: BIOL (Biological study)
(aryl, **chemiluminescence** stabilization with, nucleotide hybridization probe and other assays)

IT Amines, uses and miscellaneous
RL: BIOL (Biological study)
(benzyl, **chemiluminescence** stabilization with, nucleotide hybridization probe and other assays)

IT Spectrochemical analysis
(**chemiluminescence**, ammonia and amine-stabilized, in nucleotide hybridization probe and other assays)

IT Nucleotides, polymers
RL: SPN (Synthetic preparation); PREP (Preparation)
(oligo-, conjugates, with deoxyuridine derivs., prepn. of, for **chemiluminescence** hybridization probe assay)

IT Plasmid and Episome
(pBR322, in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

IT Amines, uses and miscellaneous
RL: USES (Uses)
(poly-, **chemiluminescence** stabilization with, for nucleotide hybridization probe and other assays)

IT Deoxyribonucleic acids
RL: SPN (Synthetic preparation); PREP (Preparation)
(reaction products, with angelicin derivs., prepn. of, for ammonia and amine-stabilized **chemiluminescence** hybridization probe assay)

IT Virus, animal
(rubella, IgG of human to, detection of, by ammonia and amine-stabilized **chemiluminescence** ELISA)

IT 25769-03-3 53602-90-7 50-89-5, Thymidine, uses and miscellaneous 58-61-7, Adenosine, uses and miscellaneous 65-71-4, Thymine 71-30-7, Cytosine 73-24-5, Adenine, uses and miscellaneous 73-40-5, Guanine 118-00-3, Guanosine, uses and miscellaneous
RL: ANST (Analytical study)
(ammonia and amine-stabilized **chemiluminescence** assay response to)

IT 521-31-3, Luminol 1445-69-8D, 2,3-Dihydro-1,4-phthalazinedione, derivs.

RL: ANST (Analytical study)
(ammonia and amine-stabilized **chemiluminescence** in nucleotide hybridization probe and other assays contg., as **chemiluminescence** precursor)

IT 13599-84-3, 6-Hydroxybenzothiazole
RL: ANST (Analytical study)
(**chemiluminescence** enhanced by ammonia and amine and, in **chemiluminescence** assay)

IT 2591-17-5, Luciferin
RL: ANST (Analytical study)
(**chemiluminescence** enhanced by ammonium acetate and, in **chemiluminescence** assay)

IT 92-04-6, 2-Chloro-4-phenylphenol 92-69-3, 4-Phenylphenol 92-88-6 95-77-2, 3,4-Dichlorophenol 98-54-4, 4-tert-Butylphenol 101-53-1, 4-Benzylphenol 106-41-2, 4-Bromophenol 106-44-5, uses and miscellaneous 106-48-9, 4-Chlorophenol 120-83-2, 2,4-Dichlorophenol 540-38-5, 4-Iodophenol 573-97-7, 1-Bromonaphth-2-ol 637-89-8 831-82-3, 4-Phenoxyphenol 1200-09-5 1634-82-8 1689-82-3, 4-(Phenylazo)phenol 1965-09-9 3558-83-6, 4-(4'-Hydroxyphenyl)benzophenone 3839-46-1 3964-56-5, 4-Bromo-2-chlorophenol 7400-08-0 13599-84-3D, 6-Hydroxybenzothiazole, derivs. 15015-57-3, 4-Hydroxyphenyldisulfide 15231-91-1, 6-Bromonaphth-2-ol 16239-18-2, 1,6-Dibromonaphth-2-ol 23795-02-0 28166-41-8, .alpha.-Cyano-4-hydroxycinnamic acid 92681-33-9 135-19-3, uses and miscellaneous
RL: ANST (Analytical study)
(**chemiluminescence** enhancement by ammonia and amines and, for nucleotide hybridization probe and other assays)

IT 71-44-3, Spermine 110-60-1 124-20-9, Spermidine 7664-41-7, Ammonia, uses and miscellaneous
RL: ANST (Analytical study)
(**chemiluminescence** stabilization with, for nucleotide hybridization probe and other assays)

IT 616-47-7, 1-Methylimidazole 693-98-1, 2-Methylimidazole 822-36-6, 4-Methylimidazole 288-32-4, Imidazole, uses and miscellaneous 288-94-8
RL: ANST (Analytical study)
(**chemiluminescence** stabilization with, in **chemiluminescence** assay)

IT 71-44-3, Spermine 631-61-8, Ammonium acetate 110-86-1, Pyridine, uses and miscellaneous 288-32-4, Imidazol, uses and miscellaneous
RL: ANST (Analytical study)
(**chemiluminescence** stabilization with, in nucleotide hybridization probe assay)

IT 109-97-7D, Azole, derivs. 7664-41-7D, Ammonia, salts 11084-06-3D, Thiazine, derivs.
RL: ANST (Analytical study)
(**chemiluminescence** stabilization with, nucleotide hybridization probe and other assays)

IT 9013-20-1, Streptavidin 7722-84-1, Hydrogen peroxide, uses and miscellaneous 9003-99-0, Peroxidase 9003-99-0D, Peroxidase, biotinylated
RL: ANST (Analytical study)
(in ammonia and amine-stabilized **chemiluminescence** nucleotide hybridization probe assay)

IT 107931-42-0DP, oligonucleotide conjugates
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and detritylation of, for **chemiluminescence** hybridization probe assay)

IT 96102-22-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and dimethoxytrityl protection of, for **chemiluminescence** nucleotide hybridization probe prepn.)

IT 96102-25-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and protection of, for **chemiluminescence** nucleotide hybridization probe prepn.)

IT 107931-41-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with DNA, for ammonia and amine-stabilized **chemiluminescence** hybridization probe assay)

IT 107931-40-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with isoluminol deriv., in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

IT 106327-87-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with oligonucleotide, for **chemiluminescence** hybridization probe assay)

IT 80500-62-5DP, reaction products with adenoviral DNA
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with biotin deriv., in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

IT 107931-39-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and succinimidation of, in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

IT 107931-38-4DP, adenoviral DNA conjugates
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as **chemiluminescence** hybridization probe, amine and ammonia **chemiluminescence** prolongation in relation to)

IT 107931-41-9DP, DNA conjugates
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as hybridization probe in ammonia and amine-stabilized **chemiluminescence** assay)

IT 107945-53-9DP, oligonucleotide conjugates
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, for **chemiluminescence** hybridization probe assay)

IT 35013-72-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with aminomethyl-angelicin coupled nucleic acids)

IT 66612-32-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with angelicin deriv., in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

IT 383-65-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloromercurydeoxyuridine, for **chemiluminescence** nucleotide hybridization probe prepn.)

IT 65505-76-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with trifluoroacetamidopropene, for **chemiluminescence** nucleotide hybridization probe prepn.)

IT 80500-62-5, 4'-Aminomethyl-4,5'-dimethylangelicin
RL: PROC (Process)
(succinylation of, in ammonia and amine-stabilized **chemiluminescence** hybridization probe prepn.)

L61 ANSWER 23 OF 23 HCAPLUS COPYRIGHT 2003 ACS
AN **1985:610409** HCAPLUS
DN **103:210409**

TI Enhanced **chemiluminescent** method for the detection of DNA dot-hybridization assays
AU Matthews, Jayne A.; Batki, Armaiti; Hynds, Catherine; Kricka, Larry J.
CS Dep. Clin. Chem., Queen Elizabeth Med. Cent., Birmingham, B15 2TH, UK
SO Analytical Biochemistry (**1985**), 151(1), 205-9
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
CC **9-10** (**Biochemical Methods**)
AB A simple enhanced **chemiluminescent** procedure for the quantitation of DNA hybridization to dot blots is described. The method utilizes DNA probes labeled with biotin, which are detected using a biotinylated streptavidin-horseradish peroxidase **complex**. The peroxidase **enzyme** then takes part in an enhanced **chemiluminescent** reaction with luminol, H2O2, and an enhancer for the detection of biotin-streptavidin-horseradish peroxidase **complexes**. The method was demonstrated by using plasmid pBR322 DNA. The method can be used to give quant. results using a photomultiplier tube or qual. results by recording the **light** emission on instant photog. film.
ST DNA hybridization detn biotin **chemiluminescence**; biotin DNA dot hybridization **chemiluminescence**; **chemiluminescence** biotin DNA hybridization
IT Deoxyribonucleic acids
RL: ANST (Analytical study)
(biotin-labeled, dot hybridization of, **enzymic-chemiluminescence** assay for quantitation of)
IT Spectrochemical analysis
(**chemiluminescence**, for dot-hybridized biotin-labeled DNA)
IT Plasmid and Episome
(pBR322, biotin-labeled DNA of, dot hybridization of, **enzymic-chemiluminescence** assay for quantitation of)
IT 58-85-5
RL: ANST (Analytical study)
(DNA labeled with, dot hybridization of, **enzymic-chemiluminescence** assay for quantitation of)
IT 9003-99-0D, reaction products with biotinylated streptavidin
RL: ANST (Analytical study)
(biotin-labeled hybridized DNA detection by)
IT 521-31-3 540-38-5 7400-08-0 7722-84-1, uses and miscellaneous
RL: ANST (Analytical study)
(**chemiluminescence** reagent contg., dot-hybridized biotinylated DNA quantitation by)

=> fil wpix
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FILE LAST UPDATED: 14 FEB 2003 <20030214/UP>
MOST RECENT DERWENT UPDATE: 200311 <200311/DW>
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=> d all abeq tech abex tot

L74 ANSWER 1 OF 4 WPIX (C) 2003 THOMSON DERWENT
AN 2001-440093 [47] WPIX
CR 1997-385276 [35]; 1999-618773 [53]; 2000-282679 [24]; 2000-531420 [41];
2001-079299 [64]; 2002-048613 [73]; 2002-060954 [66]
DNC C2001-132884
TI New **chemiluminescent** compositions with a heterocyclic ring
group, useful for producing light and in assays for detecting phosphatase
enzymes and enzyme inhibitors, and in assays employing enzyme-labeled
specific binding partners.
DC A13 A14 A89 B04 D16
IN AKHAVAN-TAFTI, H; ARGHAVANI, Z; DESILVA, R
PA (LUMI-N) LUMIGEN INC
CYC 1
PI US 6218137 B1 20010417 (200147)* 54p C12Q001-42 <--
ADT US 6218137 B1 CIP of US 1996-585090 19960116, CIP of US 1996-683927
19960719, Div ex WO 1997-US15 19970115, Div ex US 1997-894143 19970813, US
2000-540796 20000331
FDT US 6218137 B1 Div ex US 6045727
PRAI US 1997-894143 19970813; US 1996-585090 19960116; US 1996-683927
19960719; WO 1997-US15 19970115; US 2000-540796 20000331
IC ICM **C12Q001-42**
ICS C07D241-36; C09K011-06
AB US 6218137 B UPAB: 20020204
NOVELTY - A reagent composition, which produces **chemiluminescence**
in the presence of a phosphatase enzyme, is new.
DETAILED DESCRIPTION - A reagent composition, which produces
**chemiluminescence** in the presence of a phosphatase enzyme, is new.
The composition comprises in an aqueous solution:
(1) a heterocyclic phosphonate compound of formula (I), which has a
heterocyclic ring system bearing an exocyclic carbon-carbon double bond
and reacts with phosphatase; and
(2) a cationic aromatic compound in an amount effective to increase
the **chemiluminescence** compared to that generated in the absence
of the cationic aromatic compound.
Het = heterocyclic ring system comprising at least one five- or
six-membered ring, which contains 2-4 nitrogen atoms as heteroatoms;
Z' = O or S atoms;
R6 = an organic group that allows **chemiluminescence** to be
produced;
M = each independently selected from H and a cationic center; and
n = number that satisfies electroneutrality.
INDEPENDENT CLAIMS are also included for the following:
(i) a method for detecting an analyte in a sample by a
**chemiluminescent** assay procedure comprises:
(a) reacting a phosphatase enzyme with at least one compound of

formula (I) to produce **chemiluminescence** for detecting the analyte;

(b) detecting the **chemiluminescence**; and

(c) relating the amount of the **chemiluminescence** to the amount of the analyte;

(ii) a method for producing **chemiluminescence**, which comprises reacting a phosphatase me with at least one compound of the formula (I) and a cationic aromatic compound; and

(iii) a process for the preparation of the compound of formula (I).

USE - The composition is useful for generating **chemiluminescence** with phosphatase enzymes. In particular, the composition is useful in methods for producing light and in assays for detecting phosphatase enzymes and enzyme inhibitors, as well as in assays employing phosphatase-labeled specific binding partners.

ADVANTAGE - Prior methods and compositions require multiple reagents or enzymes in order to generate the luminescent signal. This results to added expense or operational complexity, thus hindering commercial acceptance. The use of the present composition provides a highly sensitive assay for detecting and quantifying **hydrolytic** enzymes. Furthermore, the use of the composition in assays does not require additional enzymes or auxiliary reagents in addition to the enzyme **substrate**. The present composition also has superior light-generating ability.

Dwg.0/19

FS CPI

FA AB; GI; DCN

MC CPI: A04-A; A04-C; A10-E08A; A10-E08B; B04-B04C; B04-B04C7; B04-C02A; B04-E01; B04-G01; B04-L05A; B05-B01M; **B11-C07B4**; B12-K04E; D05-A02B; D05-H09; D05-H11; D05-H12

TECH UPTX: 20010822

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Composition: R6 of the compound of formula (I) contains 1-50 atoms selected from C, N, O, S, P and halo. The cationic aromatic compound is selected from cyanine dyes, carbocyanine dyes, azo dyes, acridinium derivatives, methylene blue, Nile blue, IR-1040, lucigenin and paraquat dichloride. The composition further comprises an anionic surfactant in an amount effective to increase the speed with which maximum **chemiluminescence** intensity is reached and a non-ionic surfactant in an amount effective to increase the amount of **chemiluminescence**. The anionic surfactant is selected from alkylsulfates containing at least 10 carbon atoms and alkylsulfonates containing at least 10 carbon atoms. Specifically, the anionic surfactant is sodium dodecyl sulfate. The non-ionic surfactant is selected from polyoxyethylenated alkylphenols, polyoxyethylenated alcohol, polyoxyethylenated ethers and polyoxyethylenated sorbitol esters. The composition also contains a surfactant enhancer in an amount effective to enhance the **chemiluminescence**. In particular, the surfactant enhancer is a copolymer of a vinylbenzyltributylphosphonium salt and a vinylbenzyltrioctylphosphonium salt. Additionally, the composition comprises a sulfite salt, specifically sodium sulfite, in an amount effective to reduce **chemiluminescence** produced by the composition in the absence of a phosphatase enzyme.

Preparation: The compound of the formula (I) is prepared by reacting a heterocyclic ester or thioester compound having the formula (VIII), reacting the formed enolate with a phosphorylating agent to form a protected enol phosphate having the formula (IX), (where the step comprises reacting the enolate of compound (VIII) with a phosphorus oxyhalide compound POW3 to form an enol dihalophosphate having the formula (X), reacting compound (X) with at least two equivalents of a hydroxylic compound Y-OH to form the protected enol phosphate (IX)). The enol phosphate is then deprotected to from the enol phosphate salt compound (I) by reacting (IX) with at least one deprotecting agent in the presence of a cationic species M if the cationic species is not a part of the deprotecting agent. The phosphorylating agent contains the protecting

groups Y and has the formula W-PO(OY)2. The groups Y are connected to form the single group -CH2CH2-. The deprotecting agent comprises organic or inorganic bases, e.g. sodium hydroxide, potassium hydroxide, potassium carbonate, sodium methoxide, sodium ethoxide, potassium t-butoxide, ammonium hydroxide or nucleophilic agents (e.g. cyanide ion or fluoride ion). Specifically, Y may be a propionyl nitrile group, and the deprotecting agent is sodium hydroxide or sodium carbonate.
Y = protecting group;
W = F, Cl, Br or I; and
M = H, alkali metal ions, alkaline earth ions, quaternary ammonium ions or quaternary phosphonium ions.
Preferred Definitions:
Y = lower alkyl groups, substituted lower alkyl groups, phenyl, substituted phenyl or benzyl groups; and
R6 = alkyl, substituted alkyl, aryl,situated aryl and alkyl groups.
TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Method: (I) may be reacted with the phosphatase enzyme in the presence of a cationic aromatic compound. The method further comprises reacting the analyte in the sample with an analyte-binding compound, which specifically binds with the analyte and is labeled with alkaline phosphatase. The analyte-binding compound is selected from antibodies, antigens, haptens and nucleic acids. The method further comprises reacting the analyte in the sample with a labeled analyte-binding compound comprising an analyte-binding compound that specifically binds with the analyte and at least one second specific binding substance and a phosphatase-labeled binding partner for the second specific binding substance. Preferably, the detection is performed on a membrane, which comprises a nitrocellulose membrane, a polyvinylidene difluoride membrane or a nylon membrane. The method also includes providing (I) in the reagent composition. Furthermore, the method involves reacting (I) with the phosphatase enzyme in a buffer at a first pH for a first period of time adding a strongly basic trigger solution to the buffer solution to raise the pH of the buffer to a second pH for inducing the **chemiluminescence** and measuring the **chemiluminescence**. The first pH is 5.0-9.5. The pH of the trigger solution is greater than or about 11, and the first period of time is about 1 second - 10 minutes. The basic trigger solution contains the surfactant enhancer. The analyte to be detected is the phosphatase enzyme or an inhibitor of the phosphatase enzyme. The phosphatase enzyme is selected from bacterial alkaline phosphatase, mammalian alkaline phosphatase, plant acid phosphatase, mammalian acid phosphatase and alkaline phosphatase conjugates. Specifically, detecting acid phosphatase and alkaline phosphatase in a sample suspected of containing both acid and alkaline phosphatases involves a **chemiluminescence** assay, which comprises reacting the sample with the reagent composition detecting the amount or intensity of **chemiluminescence** during an initial period, waiting a second period of time until the **chemiluminescence** has achieved a constant level, detecting the amount or intensity of **chemiluminescence** during a third period, relating the **chemiluminescence** in the initial time period to the amount of acid phosphatase; and relating the **chemiluminescence** in the third time period to the amount of alkaline phosphatase.

ABEX

EXAMPLE - 4-Fluoroaniline was dissolved in of acetic acid (25 ml) and cooled in an ice bath. Acetic anhydride was added on 5 ml portions to the stirred solution. The resulting solution was poured into cold water and the precipitated product filtered off. The solid was washed with water and vacuum-dried to yield 4-fluoroacetanilide. 4-fluoroacetanilide was condensed with 1-bromo-4-fluorobenzene in the presence of potassium carbonate and copper iodide. After cooling, the mixture was filtered and the solid washed with dichloromethane (DCM). The combined organic solutions were evaporated and dissolved in of ethanol (100 ml). The ethanol was evaporated and the dark residue taken up in ether and washed with water. The ether solution was dried and concentrated and the crude

product purified by column chromatography to produce 4,4-difluorodiihenylamine. 4,4-Difluorodiihenylamine was dissolved in DCM and added to a solution of oxalyl chloride to yield 2,7-difluoroacridine-9-carboxylic acid, which was used to synthesize phenyl 2,7-difluoroacridine-9-thiocarboxylate. Phenyl 2,7-difluoroacridine-9-thiocarboxylate was suspended in 2-propanol along with ammonium chloride. Zinc was added and the reaction mixture was warmed for 2.5 hours. TLC of the reaction mixture showed complete conversion to a new material. The solution was filtered and the precipitate was washed with DCM. The filtrate was concentrated and the light orange residue was redissolved in DCM and washed with water. The organic layer was dried over sodium sulfate and concentrated to yield phenyl 2,7-difluoroacridan-9-thiocarboxylate. Phenyl 2,7-difluoroacridan-9-thiocarboxylate was used to synthesize phenyl 2,7-difluoro-10-methylacridan-9-thiocarboxylate, which was added to a solution of LDA. After stirring for 1 hour, a solution of phosphorus oxychloride and pyridine in tetrahydrofuran (THF) (4 ml) was added and the reaction mixture maintained at -78degreesC for 1 hour. The solution was cooled in an ice bath and treated dropwise with pyridine and 3-hydroxypropionitrile in of THF (4 ml). Then the precipitated pyridine-hydrochloride was filtered away and the reaction solvent evaporated in vacuo. The residue was taken up in ethyl acetate and washed with water. After drying and evaporating the ethyl acetate, the residue was separated chromatographically to yield 9-(phenylthiophosphoryloxymethylidene)-2,7-difluoro-10-methylacridan, bis(cyanoethyl) ester. A solution of the bis(cyanoethyl) phosphate compound in of acetone (17 ml) was cooled in an ice bath and purged with argon. A solution of 1N sodium hydroxide in water was also added dropwise and the solution stirred under argon for 16 hours. The precipitate that formed was suction filtered, washed with acetone and vacuum-dried. The final product was 9-phenylthiophosphoryloxymethylidene)-2,7-difluoro-10-methylacridan, disodium salt (I).

L74 ANSWER 2 OF 4 WPIX (C) 2003 THOMSON DERWENT
AN 2001-182973 [18] WPIX
DNC C2001-054654
TI New **chemiluminescent substrates** of **hydrolytic** enzymes comprising e.g. acridinium compounds, useful in qualitative and quantitative detection of hydrolases in diagnostic assays e.g. immunoassays, nucleic acid assays or receptor assays.
DC B04 D16 E11 E13
IN JIANG, Q; LAW, S; NATRAJAN, A; SHARPE, D J; WONG, W
PA (FARB) BAYER CORP
CYC 95
PI WO 2001009372 A1 20010208 (200118)* EN 119p C12Q001-42 <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2000063819 A 20010219 (200129) C12Q001-42 <--
EP 1203091 A1 20020508 (200238) EN C12Q001-42 <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
ADT WO 2001009372 A1 WO 2000-US20429 20000727; AU 2000063819 A AU 2000-63819 20000727; EP 1203091 A1 EP 2000-950764 20000727, WO 2000-US20429 20000727
FDT AU 2000063819 A Based on WO 200109372; EP 1203091 A1 Based on WO 200109372
PRAI **US 1999-146648P 19990730**
IC ICM **C12Q001-42**
ICS C07D219-06
AB WO 200109372 A UPAB: 20010402
NOVELTY - **Chemiluminescent substrate** (I) of a **hydrolytic** enzyme is new.
DETAILED DESCRIPTION - **Chemiluminescent substrate**

of a **hydrolytic** enzyme of formula (I) is new.
Lumi = **chemiluminescent** moiety;
M = multivalent heteroatom having at least one lone pair electrons, directly attached to the Lumi and to P;
P = a group that can be removed by **hydrolytic** enzymes.
USE - (I) are **chemiluminescent** compounds that are **substrates** of **hydrolytic** enzymes (e.g. phosphatases, glycosidases, peptidases, proteases and esterases). (I) are useful in assays for detecting, quantitatively or qualitatively, a **hydrolytic** enzyme of interest that is present either as a label or as a marker of a biological sample. Detection of **hydrolytic** enzymes is used in diagnostic assays e.g. immunoassays, nucleic acid assays or receptor assays, e.g. alkaline phosphatase used as a label in ELISAs. (I) may also be employed in assays which do not use enzymes as labels, e.g. clinical diagnostics for which enzymes may be freely substituted for non-enzyme labels, e.g. radioisotopes, chromophores or fluores. (I) may be used in heterogeneous or homogeneous **chemiluminescent** assay.
ADVANTAGE - The **chemiluminescent** products generated by the action of **hydrolytic** enzymes on (I) have physical and chemical properties (e.g. fundamental net charge distribution, dipole moment, free energy, bond orders, apparent hydrophobicity/hydrophilicity, solubility, or affinity) which are different from those of their corresponding (I). The **chemiluminescent** products therefore have light emission characteristics (i.e. emission maxima, light-emitting kinetics and quantum yields) that are distinctly different from those of their corresponding (I). This allows separation or distinction of the signal of the **substrate** from the signal of the product or vice versa when both **substrate** and product are present in the same test vessel. The **chemiluminescent** products do not undergo substantial decomposition during the enzymatic reaction and thus can be accumulated until triggered by a light-releasing reagent (I) are thermally and **hydrolytically** stable in an aqueous environment and are readily hydrolyzed by **hydrolytic** enzymes.
Dwg.0/32

FS CPI
FA AB; GI; DCN
MC CPI: B05-B01E; B05-B01M; B06-D11; B06-H; B12-K04; D05-A01A4; D05-A01B3; D05-H09; D05-H12; E05-G01; E05-G07; E06-D11; E06-H
TECH UPTX: 20010402

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preparation: No general preparation of (I) is given. In a specific preparation, (Ia) is obtained by reacting an acid of formula (II) with p-TsCl in pyridine followed by reaction with benzoate ester of formula (III) to give a compound of formula (IV) which is treated with F3CSO3Me to give (Ia).
A' = CF3CO2- after the compound has been recovered from HPLC mobile phase containing CF3COOH;
OMEM = methoxyethoxymethoxy.
Preferred Compounds: (I) is a compound of formula (I1) or (I2) where Lumi is an acridinium compound; a compound of formula (I3) where Lumi is an acridan compound; or of formula (I4) where Lumi is a(n) spiroacridan compound. (I) is especially of formula (I2a).
R1 = alkyl, alkenyl, alkynyl or aralkyl containing 0-20 heteroatoms, preferably Me, sulfoalkyl or alkyl containing one or more hydrophilic groups selected from sulfonate, sulfate, COOH, phosphonate, ethylene glycol, polyethylene glycol, quaternary ammonium (N+(R)3), or any groups containing one or more of the hydrophilic groups;
C1, C3-C8 peri-positions of the acridinium nucleus are optionally substituted by R2a-R2c, R3a-R3d;
R2a-R2c, R3a-R3d = R, optionally substituted aryl, halo, nitro, sulfonate, sulfate, phosphonate, COOH, COOR, CN, SCN, OR, SR, SSR, COR, CONHR, ethylene glycol or polyethylene glycol;
R = alkyl, alkenyl, alkynyl, aryl or aralkyl having 0-20 heteroatoms;

A- = counter ion for the electroneutrality of the quaternary nitrogen of the acridinium compounds, the A- not being present if R1 contains a strongly ionizable group that can form an anion and pair with the quaternary ammonium cationic moiety;
X = N, O or S;
provided that:
(i) when X = O, Z = absent and Y = optionally substituted aryl or N=CR9R10;
(ii) when X = S, Z = absent and Y = optionally substituted aryl;
(iii) when X = N, Z = SO2Y', Y' = as for Y, 0-20C optionally halogenated alkyl, substituted aryl or heterocyclic ring system;
R9, R10 = H, optionally substituted aryl, alkyl, alkenyl, alkynyl, halo, alkoxy or aryloxy.
B = divalent cation or 2 monovalent cations;
X1, X2 = O, S or N;
provided that:
(1) when either one or both of X1 and X2 are O or S, the corresponding Z1 or Z2 or both Z1 and Z2 are absent; and
(2) when one or both X1 or X2 = N, the corresponding Z1 or Z2 or both Z1 and Z2 are H, alkyl, aryl or SO2Y';
G = a group connecting X1 and X2 to form a ring having 5-10 members.
Preferably:
R2c, R3a or R3c is M-P, and the C2 peri-position is optionally substituted;
any 2 adjacent substituents at the acridinium nucleus peri-positions can be linked to form additional carbocyclic and heterocyclic rings fused to the attached acridinium nucleus, the rings being selected from e.g. =CH-CH=, =CH-N=, S-CH= or O-CH=N;
A = MeSO4-, FSO3-, CF3SO3-, C4F9SO3-, MeC6H4SO3-, halo, CF3COO-, MeCOO- or NO3-.

ABEX

WIDER DISCLOSURE - Disclosed as new are light-releasing reagent compositions and reagent addition protocols for triggering light emission from (I) and products that result in better distinction between the signals of (I) and products, where the light-releasing compositions (i) can be single and/or multiple reagent for synchronous or sequential addition to the reaction vessel; (ii) comprise one or more peroxides or peroxide equivalents e.g. H2O2; (iii) interact with (I) and product differentially that the differentiation between the 2 signals is optimized; (iv) contain one or more enhancers selected from organic, inorganic or polymeric compounds having a broad range of molecular weights, which differentially enhance the light output from either the **substrate** or the product; (v) also contain one or more quenchers, blockers or inhibitors selected from organic, inorganic or polymeric compounds having a broad range of molecular weights such that they differentially quench, block or reduce the light output from either (I) or the product.
EXAMPLE - A suspension of 2-methoxyethoxymethoxy-acridine-9-carboxylic acid (II) (3.6 g) in pyridine (150 ml) was treated with p-toluenesulfonyl chloride (4.183 g) at 0 degreesC for 5 minutes to give a homogeneous brown solution. Then, benzyl 3,5-dimethyl-4-hydroxy-benzoate (III) (2.818 g) was added. The solution was stirred at room temperature under nitrogen for 20 hours. The solvent was removed under reduced pressure. The residue was separated on a silica flash chromatography column packed in hexane and eluted with 50% ether/hexane (1 l) followed by 70% ether/hexane (3 l). The product fraction was obtained from the 70% ether/hexane eluent. Evaporation of the solvents under reduced pressure gave (2',6'-dimethyl-4'-benzyloxycarbonyl)phenyl 2-methoxy-ethoxy-methoxy-acridine-9-carboxylate (IV) (3.74 g). A light-yellow solution of (IV) (400 mg) in CH2Cl2 (20 ml) was treated with methyl trifluoromethane sulfonate (0.4 ml) at room temperature under N2 with stirring for 14 hours. The resulting mixture was treated with ether. The precipitate was collected and washed with ether (4 x 20 ml) to give crude (2',6'-dimethyl-4'-

benzyloxycarbonyl)phenyl 2-hydroxy-10-methyl-acridinium-9-carboxylate trifluoroacetate (Ia) (325 mg). This compound (25 mg) was further purified on a preparative HPLC column, eluted in gradient by mixing 0.05%TFA/water (solvent A) and 0.05% TFA/acetonitrile (solvent B) in the following manner: 40-60 % B in 40 minutes, flow rate 20 ml/minute, monitored at 260 nm. The product was collected crystallized from CH2Cl2/ether to give 17 mg of pure (Ia).

DEFINITIONS - Preferred Definitions:
M = O, N or S;
P = a group that is thermally and hydrolytically stable in aqueous medium and is removable by a hydrolytic enzyme;
Lumi = acridinium compounds, benzacridinium compounds, quinolinium compounds, isoquinolinium compounds, phenanthridium compounds, lucigenin compounds, acridans or other reduced forms of the above, acridines or other non-N-alkylated forms of the above, spiroacridan compounds, luminol compounds or isoluminol compounds.

L74 ANSWER 3 OF 4 WPIX (C) 2003 THOMSON DERWENT
AN 1999-370498 [31] WPIX
DNC C1999-109293
TI Microcolonyimager instrument for screening cells expressing mutagenized enzymes.
DC B04 D16
IN BYLINA, E J; COLEMAN, W J; DILWORTH, M R; SILVA, C M; YANG, M M; YOUVAN, D C; YANG, M
PA (KAIR-N) KAIROS SCI INC
CYC 86
PI US 5914245 A 19990622 (199931)* 25p C12Q001-44 <--
WO 2000078997 A1 20001228 (200103)# EN C12Q001-44 <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
AU 9948258 A 20010109 (200122)# C12Q001-44 <--
ADT US 5914245 A Provisional US 1998-82440P 19980420, US 1998-98202 19980616; WO 2000078997 A1 WO 1999-US13824 19990617; AU 9948258 A AU 1999-48258 19990617, WO 1999-US13824 19990617
FDT AU 9948258 A Based on WO 200078997
PRAI US 1998-82440P 19980420; US 1998-98202 19980616; WO 1999-US13824 19990617; AU 1999-48258 19990617
IC ICM **C12Q001-44**
ICS **C12Q001-00; C12Q001-37; C12Q001-54**
AB US 5914245 A UPAB: 19990806
NOVELTY - A Microcolonyimager (MCI) instrument for imaging and analyzing microcolonies of cells on a target comprising a processor coupled to a light source, camera and a sampling mechanism is new.

DETAILED DESCRIPTION - The instrument includes a processor coupled to a light source for controllably emitting light with a selected set of wavelengths, a camera for imaging light received from the target within a selected set of wavelengths and a sampling mechanism for selecting samples from the target. The instrument automatically images regions of the target over time and indicates which of the portions have a desired change in any optical signal.

INDEPENDENT CLAIMS are also included for:

(1) a method for imaging and analyzing microcolonies of cells which includes forming over 100 regions containing at least one cell on a substantially continuous base at a density of 10 regions/cm2, initiating a chemical reaction in each region that results in an optically detectable signal that changes over time, automatically monitoring for changes in the optical signal and indicating which portions show a desired change;

(2) a method of performing solid-phase directed evolution enzyme screening which includes generating an average density of at least 10 microcolonies of cells/cm2 on a solid phase expressing variants of at least one enzyme, contacting the expressed variants with at least one optical signal **substrate** (each one indicative of a desired enzyme activity) and automatically detecting changes over time in the optical signals generated by the optical signal **substrates** in the microcolonies which indicate the desired enzymatic activity of the variants of the enzyme; and

(3) a method of performing solid phase enzyme discovery screening including generating a density of at least 10 microcolonies of cells/cm2 on a solid phase, contacting the microcolonies which are members of a recombinant DNA library with at least one optical signal **substrate** indicative of a desired enzymatic activity and automatically detecting changes over time in the signals generated by the optical signal **substrates** in the microcolonies where the changes indicate desired enzymatic activity.

USE - For screening cells that express mutagenized enzymes for enhanced activity for example **hydrolytic**, protease, esterase, glycosidase, isomerase, lyase, polymerase, synthase, synthetase, monooxygenase, dioxygenase, transferase or an oxido-reductase or a green fluorescent protein (GFP)-enzyme fusion protein. The MCI can be used in concert with directed evolution to provide customized evolution of enzymes for use in chiral chemistry. It can be used to isolate new enzyme activities that are used in the synthesis, modification or degradation of different substances for example a change in enantiomeric excess, **substrate** specificity, stereospecificity, or rate regiospecificity of a reaction or thermostability or stability of an enzyme in the presence of specified chemicals and enzymatic parameters for the variants of the enzyme. High throughput screening of enzyme libraries by timecourse analyses of single pixels using absorption, fluorescence or fluorescence resonance energy transfer (FRET) can be carried out.

ADVANTAGE - Using microcolonies gives more accurate kinetic and spectral data than from screening colonies and only 100-200 nl **substrate**/reaction are needed whereas liquid samples require 50 micro l/reaction well. The MCI allows fluorogenic **substrates** and new types of membranes to be used which decreases reaction volumes further so this method is particularly suitable for assays that use **substrates** which are expensive or difficult to synthesize.

Dwg.0/7

FS CPI

FA AB; DCN

MC CPI: B04-F01; B04-F10; B04-L01; B06-D01; B07-A02B; B11-C07B2; B11-C08C; B11-C08E3; B12-K04A; B12-K04E; D05-H02; D05-H09

TECH UPTX: 19990806

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Imaging: Automatic optical monitoring is carried out by imaging the regions of microcolonies with a camera which forms a pixel image with each region spanning at least one pixel. The image produced is color coded to indicate which portions have a desired change in optical signal and samples are then isolated from these portions either manually or automatically. The instrument automatically selects a sample from at least one indicated portion using the sampling mechanism.

Preferred Light Source: The MCI can use a monochromatic light source or provide a spectrum or white light and has a variable filter for controlling the wavelengths of the light it emits. The instrument also has a fiber optic illuminator and an integrating chamber between the light source and the target to disperse the emitted light and uniformly illuminate the target.

Preferred Camera: Any electronic camera which can be adapted to interact with the computer, preferably a charge-coupled device camera.

Preferred Optical Signal **Substrate**: Either the product or reactant is colored and is a chromogenic, fluorogenic, fluorescence

resonance energy transfer (FRET) or **chemiluminescent substrate**.
Preferred Base: A petri dish, assay disk for growing bacteria or an array of glass or plastic beads can be used as the substantially continuous base allowing free diffusion of liquid throughout its surface.
The average density of regions on the base is preferably at least 200 regions/cm2.

TECHNOLOGY FOCUS - BIOLOGY - Preferred Cells: The microcolony is clonally derived from a single parent cell and can be composed of any bacterial, plant, fungal or animal cell.
Cells for the solid-phase directed evolution enzyme screening are produced by generating a library of mutant cells (through inducing mutagenesis of DNA encoding an enzyme and transforming the DNA into cells) on a solid phase with many of the cells expressing variants of at least one enzyme.
Gene expression of the variants is induced through induction of a virus-encoded gene using a lytic or temperate virus.
Preferred Method: To contact the expressed variants and expose the enzymes to be contacted with the optical signal **substrate** the cells of the microcolonies are lysed or permeabilized.
A sample is isolated from the indicated microcolonies either manually or automatically and then DNA is obtained from these samples and transformed into biological cells.

ABEX

EXAMPLE - A directed evolution experiment was carried out using the model enzyme system Agrobacterium beta-glucosidase (abg) to differentiate between abg mutants 10% Y380F and 90% R377T in a randomly distributed mixture of Escherichia coli microcolonies. The mutant enzymes were known to differ 3-fold in kcat for the chromogenic **substrate**, 5-bromo-4-chloro-3-indolyl-beta-galactoside (X-gal). Activity of abg was screened using p-nitrophenyl-glucoside as the **substrate** in a colormetric assay using a Beckman DU 7400 diode array spectrophotometer equipped with a Peltier temperature-controlled/motor driven 6-cell holder. The prototype Microcolonyimager was used to collect enzyme kinetics information and automatically selected data from 15 pixels that had the highest rate of increase in absorbance and 15 'slow' colonies were manually selected. Two discrete groups formed that differed by 3-fold in velocity. The Y380F variant was about 3 times more active than the R377T enzyme which reflected the known kinetic difference and the measured distribution of velocities matched the 10:90 mix set up in the experiment.

L74 ANSWER 4 OF 4 WPIX (C) 2003 THOMSON DERWENT
AN 1998-322337 [28] WPIX
CR 1994-359708 [45]; 1995-320657 [41]; 1995-373809 [48]; 1996-171724 [17]; 1996-171725 [17]; 1997-488430 [45]; 1998-205997 [18]
DNN N1998-252081 DNC C1998-099110
TI **Chemiluminescent** detection method, e.g. for detection of DNA mutations - using two enzyme-labelled specific binding partners, where the two enzymes together produce a detectable **chemiluminescent** signal.
DC A96 B04 D16 S03
IN AKHAVAN-TAFTI, H; REDDY, L V; SUGIOKA, K; SUGIOKA, Y
PA (LUMI-N) LUMIGEN INC
CYC 24
PI WO 9821586 A1 19980522 (199828)* EN 65p G01N033-535
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA CN JP KR
AU 9850940 A 19980603 (199842) G01N033-535
US 5843666 A 19981201 (199904) G01N033-535
EP 938677 A1 19990901 (199940) EN G01N033-535
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
AU 726512 B 20001109 (200063) G01N033-535
JP 2001504226 W 20010327 (200122) 54p G01N033-535

ADT WO 9821586 A1 WO 1997-US19612 19971107; AU 9850940 A AU 1998-50940 19971107; US 5843666 A CIP of US 1994-300367 19940902, US 1996-749595 19961115; EP 938677 A1 EP 1997-913856 19971107, WO 1997-US19612 19971107; AU 726512 B AU 1998-50940 19971107; JP 2001504226 W WO 1997-US19612 19971107, JP 1998-522595 19971107

FDT AU 9850940 A Based on WO 9821586; EP 938677 A1 Based on WO 9821586; AU 726512 B Previous Publ. AU 9850940, Based on WO 9821586; JP 2001504226 W Based on WO 9821586

PRAI US 1996-749595 19961115; US 1994-300367 19940902

IC ICM G01N033-535
ICS **C12Q001-68**; G01N033-543

ICA G01N033-53

AB WO 9821586 A UPAB: 20010421
A method for simultaneously detecting a first and second target species(S1 and S2), by a single **chemiluminescent** reaction, comprises: (a) contacting a sample (which is suspected of containing S1 and S2) with: (i) a first specific binding partner (SBP1) which binds to S1, to form a first binding pair (BP1); and (ii) a second specific partner (SBP2) which binds to S2, to form a second binding pair (BP2); (b) providing a **hydrolytic** enzyme as a label for SBP1, and providing a peroxidase enzyme as a label for SBP2; (c) providing, for reaction with BP1 and BP2, a **chemiluminescent** peroxidase **substrate** (PS), a peroxide compound and a protected enhancer compound of formula ArOX (where X is a group which is removable by the **hydrolytic** enzyme to produce a phenolic enhancer compound ArOH which enhances the activity of the peroxidase enzyme); (d) allowing the **hydrolytic** enzyme to react with the ArOX compound to give the ArOH compound, which enhances the activity of the reaction of the peroxidase with the peroxide and the PS, thus producing **chemiluminescence**; and (e) measuring the **chemiluminescence** produced, where the presence of **chemiluminescence** indicates the presence of both target species in the sample.
USE - The process may be used to detect and quantitate various biological molecules, e.g., antigens and antibodies by immunoassay, proteins by Western blotting, DNA by Southern blotting or RNA by Northern blotting. The process may be used to detect DNA mutations and chromosomal translocations. The process can be used to differentiate homozygotes from heterozygotes for a genetic condition specifically in cystic fibrosis. (all claimed)
ADVANTAGE - The process uses two enzyme-labelled probes acting in concert to generate **chemiluminescence**. The process allows quantitation with increased specificity.
Dwg.0/8

FS CPI EPI

FA AB; DCN

MC CPI: A12-V03C2; B04-B03C; B04-B04C; B04-E01; B04-E05; B04-G01; B04-L03B; B04-L05A; B04-N04; B05-B01M; B05-B01N; B05-B02C; B05-C08; B06-D06; B06-D11; B06-F01; B07-A02B; B07-D09; B07-F01; B10-A06; B10-A15; B10-C03; B10-D03; B10-G02; **B11-C07B4**; B12-K04; D05-A01A4; D05-A01B1; D05-A01B3; D05-H09; D05-H11; D05-H12D1
EPI: **S03-E04E**; S03-E14H4

=> d all abeq tech abex tot

L84 ANSWER 1 OF 7 WPIX (C) 2003 THOMSON DERWENT

AN 2001-502720 [55] WPIX

DNC C2001-151260

TI Assaying for a target nucleic acid comprising employing a quasi-autocatalytic replicase activity and detecting the presence of amplified target to ensure fidelity.

DC B04 D16

IN **JIANG, Q**; **LAW, S**; MONAHAN, J E; MORELLO, A M

PA (JIAN-I) JIANG Q; (LAWS-I) LAW S; (MONA-I) MONAHAN J E; (MORE-I) MORELLO A M; (FARB) BAYER CORP
CYC 21
PI WO 2001059162 A2 20010816 (200155)* EN 61p C12Q001-68 <--
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
W: JP
US 2002098485 A1 20020725 (200254) C12Q001-68 <--
ADT WO 2001059162 A2 WO 2001-US4244 20010208; US 2002098485 A1 Provisional US 2000-180918P 20000208, US 2001-781106 20010208
PRAI US 2000-180918P 20000208; US 2001-781106 20010208
IC ICM **C12Q001-68**
ICS C12P019-34
AB WO 200159162 A UPAB: 20010927
NOVELTY - Assaying for a target nucleic acid comprising:
(a) combining probes with a nucleic acid sample;
(b) causing autocatalytic replication of replicable sequences and antitarget sequence segments in the probes; and
(c) detecting the replicated ATS, is new.
DETAILED DESCRIPTION - Assaying (M1) for a target nucleic acid comprises:
(a) combining a set of one or more amplification probes (I) with a nucleic acid sample (NS) under conditions suitable for hybridization to form a hybridized complex comprising a quasi-autocatalytically replicable sequence;
(b) subjecting the hybridized complex to conditions suitable for the replicase to cause quasi autocatalytic replication of both first and second partial replicable sequences and the first and second antitarget sequence segments; and
(c) detecting amplified levels of the replicated ATS.
The NS comprises a target sequence (TS) with a complementary antitarget sequence (ATS). Each (I) of the set of (I) comprises an ATS segment capable of hybridizing to the TS and a replication segment comprising partial replicable sequence.
INDEPENDENT CLAIMS are also included for the following:
(1) Assaying (M2) a target nucleic acid comprising:
(a) combining a first and second amplification probe, each with an ATS capable of hybridizing with a replicable sequence with a nucleic acid sample comprising a TS, to form a hybridized complex such that the replicable sequences have a quasi-autocatalytically replicable sequence;
(b) subjecting the hybridized complex to conditions suitable for the replicase to cause quasi autocatalytic replication of both first and second partial replicable sequences and the first and second antitarget sequence segments; and
(c) detecting amplified levels of the replicated ATS;
(2) Assaying (M3) a target nucleic acid comprising:
(a) combining a first and second amplification probe, each with an ATS capable of hybridizing with a replicable sequence with a nucleic acid sample comprising a TS, to form a hybridized complex such that the replicable sequences have a quasi-autocatalytically replicable sequence;
(b) Subjecting the amplifiable segments to conditions effective for catalysis resulting in replication of both the amplifiable sequence and the ATS; and
(c) detecting the presence of the ATS;
(3) A kit for nucleic acid amplification or for performing the methods comprising:
(a) a set of containers containing target specific amplification probes comprising an ATS and a replicase replicable sequence segment;
(b) a replicase enzyme container; and
(c) a detection probe comprising a reporter molecule and a TS detection segment;
(4) Increasing (M4) the signal to noise ratio for detecting a TS obtainable from detection probes that hybridize to TS segments where the TS segments do not overlap and the TS segments reside in a region

comprising the TS and the signal to noise ratio for detection of the target by the first probe is enhanced by the presence of the second probe.

USE - M1, M2 and M3 are useful for assaying a target nucleic acid. M4 is useful for increasing the signal to noise ratio for detecting a target sequence (all claimed).

ADVANTAGE - Increases the fidelity of amplification by improving the signal to noise ratio making it easier to discern whether a target sequence is present in the analyte when using Q beta replicase amplification. This is performed by utilizing additional detection probes for determining the amount of unhybridized replicase replicable sequence to determine fidelity.

It had been observed a number of times that the signal to noise ratio (S/N) of one detection probe was enhanced as a result of the presence of a second probe. Using Q beta amplification products as analyte sample, detection analyses were conducted with either one or two detection probes. Enhancement in S/N for one detection probe was demonstrated in those tests where two detection probes were used. The slope of S/N versus amount of amplification product was 3.78 with one detection probe and was 5.63 with two detection probes representing an enhancement of 49%.

Dwg.0/6

FS CPI

FA AB; DCN

MC CPI: B04-E03; B04-E05; B04-L04A; **B11-C07B4**; B11-C08E3; B11-C08E5; B12-K04A; B12-K04F; D05-H09; D05-H12; D05-H12D1; D05-H18B

TECH UPTX: 20010927

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Method: The probes comprise DNA sequences. The replicase has DNA-dependent RNA polymerase activity and is preferably a Qbeta replicase. The detecting is by a set of target sequence probes comprising a reporter molecule and a detection sequence complementary to the TS or ATS, preferably the detection sequence comprises a portion of the ATS. Step (a) further comprises removing all unhybridized probe molecules from the hybridized complex. The method further comprises detecting amplified replicase replicable sequence by a probe comprising a second reporter molecule and a second detection sequence which is complementary to the replicable sequence. The detecting of step (d) is by a replicable sequence detection probe comprising a nucleic acid sequence coupled to a paramagnetic particle and complementary to the replicable sequence.

In M4, the TS is a double stranded sequence, and the method further comprises employing a third detection probe that hybridizes to a third detection sequence segment and also enhances signal to noise ratio.

Preferred Reporter Molecule: The reporter molecule comprises a luminescent molecule preferably a **chemiluminescent** molecule preferably an **acridinium**, **benzacridinium**, quinolinium, isoquinilium, phenanthridinium, luminol, isoluminol or lucigenin most preferably a dimethyl **acridinium** ester or long emission **acridinium** ester.

ABEX

EXAMPLE - No suitable example is given.

L84 ANSWER 2 OF 7 WPIX (C) 2003 THOMSON DERWENT

AN 2000-400192 [34] WPIX

DNN N2000-299758 DNC C2000-120935

TI Measurement of hydride generated in a chemical, biochemical or enzyme-catalysed reaction using **chemiluminescence** generated when an **acridinium** compound reacts with hydride.

DC B02 B04 D16 S03

IN **JIANG, Q**; **LAW, S**; **NATRAJAN, A**; PARSONS, G; **SHARPE, D**

PA (FARB) BAYER CORP

CYC 88

PI WO 2000031543 A1 20000602 (200034)* EN 64p G01N033-58

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL

OA PT SD SE SL SZ TZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU
LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
TT UA UG US UZ VN YU ZA ZW

AU 2000011734 A 20000613 (200043) C07D221-12
BR 9907248 A 20001017 (200056) G01N033-58
EP 1049933 A1 20001108 (200062) EN G01N033-58
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
JP 2002530678 W 20020917 (200276) 54p G01N031-00

ADT WO 2000031543 A1 WO 1999-IB1894 19991124; AU 2000011734 A AU 2000-11734 19991125; BR 9907248 A BR 1999-7248 19991124, WO 1999-IB1894 19991124; EP 1049933 A1 EP 1999-972738 19991124, WO 1999-IB1894 19991124; JP 2002530678 W WO 1999-IB1894 19991124, JP 2000-584306 19991124

FDT AU 2000011734 A Based on WO 200031543; BR 9907248 A Based on WO 200031543; EP 1049933 A1 Based on WO 200031543; JP 2002530678 W Based on WO 200031543

PRAI US 1998-109823P 19981125

IC ICM C07D221-12; G01N031-00
ICS C07D215-50; C07D219-04; **C12Q001-00; C12Q001-32;** G01N021-78

ICA G01N033-58

AB WO 200031543 A UPAB: 20000718

NOVELTY - A **chemiluminescent** assay for detecting or quantitating hydride comprises measuring the **chemiluminescence** generated when a **chemiluminescent** compound reacts with hydride generated in a chemical, biochemical or enzyme-catalysed reaction.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(i) a method for determining the amount of hydride produced in a reaction;

(ii) a method for determining the amount of an analyte in a sample by determining the amount of hydride produced in a reaction;

(iii) a kit comprising reagents for a colorimetric assay for hydride and a **chemiluminescent** indicator of hydride;

(iv) a **chemiluminescent** hydride indicator of formula (I), (II) or (III);

(v) a method for eliminating interference resulting from the presence of whole blood comprising:

(a) adding a solid phase coated with an antibody specific for an **acridinium** compound;

(b) incubating to allow capture of the **acridinium** compound; and

(c) separating the solid phase and washing to remove the interfering substance.

R1 = alkyl, alkenyl, alkynyl or aralkyl containing up to 20 heteroatoms;

R2, R2', R3 = H, R, Ar-R, Ar, halogen, NH2, OH, NO2, sulfonate, CN, COOH, SCN, OR, SR, SSR, C(O)R, C(O)OR, C(O)NHR or NHC(O)R; or

R2 + R3 = additional ring fused to the **acridinium** nucleus;

Ar = aryl;

R = alkyl, alkenyl, alkynyl, aryl or aralkyl optionally containing up to 20 heteroatoms;

A- = counter ion;

X = N, O or S;

Y' = polysubstituted aryl;

R5, R6, R7 = R2;

Z' = absent when X is O or S, or is SO2-Y' when X is N; and

R4, R8 = H, alkyl, alkenyl, alkynyl, OR, SR or substituted amino.

NB: R5, R6 and R7 are defined but not used.

USE - The assay is useful for determining the amount of hydride produced in a reaction (e.g. biochemical redox reaction of an enzyme cofactor, especially NAD+, NADP+, FMN or FAD) or the amount of an analyte (especially theophylline, valproate, quinidine or ethanol in serum) in a sample.

Assays were conducted as follows. Samples were treated with a solution containing glucose-6-phosphate (G6P), NAD and anti-theophylline antibody (300 micro l) and incubated at 37 deg. C for 2 minutes 40 seconds. A buffered solution of theophylline-G6PDH (glucose-9-phosphate dehydrogenase) conjugate (150 micro l) was added and the mixture was incubated at 37 deg. C for 2 minutes and 40 seconds. The **chemiluminescent** indicator (20 micro l) was added and the mixture was incubated at 37 deg. C for 5 minutes. The mixture was treated with 0.1M HNO3/0.5 % H2O2 and 0.25M NaOH/0.5 % N,N,N,N-hexadecyltrimethylammonium chloride to initiate the **chemiluminescent** reaction.

ADVANTAGE - The method eliminates interference resulting from the presence of whole blood.

Dwg.0/22

FS CPI EPI

FA AB; GI; DCN

MC CPI: B06-D02; B06-D11; **B11-C07B4**; B11-C09; B12-K04E; D05-H09
EPI: S03-E14H

TECH UPTX: 20000718

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Method: The **chemiluminescent** compound is preferably an **acridinium**, **benzacridinium**, phenanthridinium, quinolinium or lucigenin or a conjugate, ester or sulfonylamide.

The hydride preferably reacts with a **chemiluminescent** compound containing:

(a) an extended electronic conjugation system;
(b) a hydride reducible quencher;
(c) electron donating groups; or
(d) a fluorescent resonance energy acceptor.

ABEX

EXAMPLE - **Acridine**-9-carboxylic acid (5 g) was heated under reflux with SOCl2 (25 ml) to give a solution which was cooled and poured into benzene (200 ml). The suspension was chilled in a refrigerator overnight and filtered to give 5.3 g of the acid chloride. The above compound (5.3 g) was mixed with 2,6-dimethylphenol and dimethylaminopyridine (0.5 g) in pyridine (40 ml) and heated to 100 degreesC for 3 hours. The mixture was cooled and purified by chromatography to give 2',6'-dimethylphenyl **acridine** -9-carboxylate.

A solution of the above compound (20 mg) in anhydrous CH2Cl2 (2 ml) was treated with methyl trifluoromethanesulfonate (0.175 ml) for 16 hours. Anhydrous ether (50 ml) was added and the precipitate was collected and washed to give 29 mg of 2',6'-dimethylphenyl 10-**methylacridinium** -9-carboxylate trifluoromethanesulfonate.

The above compound (50 mg) in MeOH (20 ml) was cooled in an ice bath and treated with NaBH4 (20 mg). After 1 hour, additional NaBH4 (20 mg) was added and the mixture was stirred at room temperature for 16 hours. Acetic acid (1 ml) was added and the mixture was concentrated. The residue was purified by chromatography to give 30 mg of 2',6'-dimethylphenyl 10-**methylacridinium**-9-carboxylate (DMAE-phi).

A 0.10 M N(10)-**methylacridinium** tetrafluoroborate (300 microl) was mixed with 0.50 microM DMAE-phi (750 microl) into water (1.95 ml) to give the **chemiluminescent** hydride indicator.

DEFINITIONS - Preferred Definitions:

R1 = Me or sulfoalkyl;

A- = CH3SO4-, FSO3-, CF3SO3-, C4F9SO3-, CH3C6H4SO3-, halide, CF3COO-, CH2COO- or NO3-

Y' = phenyl substituted by R4, R5, R6, R7 and R8 in positions 1, 2, 3, 4 and 5 respectively;

R4, R8 = H, alkyl, alkenyl, alkynyl, alkoxy, alkylthio or substituted amine, preferably lower alkyl, especially methyl;

R6 = R2 or R9-R10;

R9 = absent, alkyl or aryl or aralkyl (containing up to 20 heteroatoms);
R10 = leaving group or electrophilic functional group selected from N=C=S, -N=C=O, SO2Cl, -N3, -N2+Cl-, halide, C(O)-halide, C(O)OH, C(O)OR, QRNu, -Q-R-(I)nNu, -Q-Nu, -R-Nu, -Nu or a group of formula (i) - (vii);
n = at least 1;
Nu = nucleophilic group;
Q = functional linkage; and
I = ionic or ionizable group.

L84 ANSWER 3 OF 7 WPIX (C) 2003 THOMSON DERWENT
AN 2000-224255 [19] WPIX
DNN N2000-168079 DNC C2000-068424
TI New **acridinium** compounds, useful in assays for detection or quantitation of analytes.
DC B04 D16 E22 J04 S03
IN **JIANG, Q; LAW, S; NATRAJAN, A; SHARPE, D**
PA (FARB) BAYER CORP
CYC 87
PI WO 2000009487 A1 20000224 (200019)* EN 89p C07D219-04
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
AU 9954739 A 20000306 (200030) C07D219-04
EP 1104405 A1 20010606 (200133) EN C07D219-04
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
US 6355803 B1 20020312 (200221) C07D219-04
US 2002076823 A1 20020620 (200244) G01N021-76
JP 2002522530 W 20020723 (200263) 104p C07D219-04
ADT WO 2000009487 A1 WO 1999-US18076 19990810; AU 9954739 A AU 1999-54739 19990810; EP 1104405 A1 EP 1999-941005 19990810, WO 1999-US18076 19990810; US 6355803 B1 Provisional US 1998-96073P 19980811, US 1999-371489 19990810; US 2002076823 A1 Provisional US 1998-96073P 19980811, Div ex US 1999-371489 19990810, US 2001-6421 20011206; JP 2002522530 W WO 1999-US18076 19990810, JP 2000-564941 19990810
FDT AU 9954739 A Based on WO 200009487; EP 1104405 A1 Based on WO 200009487; JP 2002522530 W Based on WO 200009487
PRAI US 1998-96073P 19980811; US 1999-371489 19990810; US 2001-6421 20011206
IC ICM C07D219-04; G01N021-76
ICS C07D401-12; C07K017-06; C09K003-00; C09K011-07; C12N015-09; **C12Q001-68**; G01N033-533; G01N033-58
ICA C07K014-765; C07K016-26; G01N033-532
AB WO 200009487 A UPAB: 20000419
NOVELTY - **Acridinium** compounds emitting light having wavelength maxima longer than 590 mm are new.
DETAILED DESCRIPTION - New **acridinium** compound comprises an extended, coplanar, conjugated system formed by the attachment of a functional group on the **acridinium** nucleus. The system maintains coplanarity during light emission and the functional group comprises at least one aromatic ring and one electron-donating atom or group or the compound comprises one or more electron-donating atoms or groups directly attached to the **acridinium** nucleus. The functional group is attached to C-3 or C-1 position of the **acridinium** nucleus and the electron-donating atoms or groups directly attached to the nucleus are attached to one or more of the positions C-2, C-4, C-5 or C-7.
USE - The compound may be used in assays for the detection or quantitation of an analyte or for simultaneous detection of multiple analytes (claimed). When two or more compounds are used, the compounds

allow the discrimination of their wavelengths or magnitude and the differences in the magnitude can be correlated to the amounts of the various analytes present. When two analytes are to be determined, two compounds are used which luminesce at two different wavelength maxima, which allow discrimination of their signals and magnitude, which in turn can be correlated to the amounts of the two analytes present.
Dwg.0/6

FS CPI EPI
FA AB; DCN
MC CPI: B02-Z; B03-L; B04-B03C; B04-C02; B04-E01; B04-G01; B04-J01; B04-J02; B04-L01; B04-N04; B04-N05; B04-N06; B06-D11; **B11-C07B4**; B12-K04; D05-H09; E06-D11; E25-E01; J04-B01
EPI: S03-E14H; S03-E14H4
TECH UPTX: 20000419

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Compound: The **acridinium** compound is conjugated to a small organic biomolecule, viral particle, sub-cellular component or entire cell. The conjugation is either by direct covalent bonding or by indirect bonding via a spacer. The macromolecule is selected from protein, peptide, inactivated protein, DNA, RNA, oligonucleotide, polysaccharide, oligosaccharide, glycoprotein, glycosamino glycan, lectin, lipoprotein, lipopolysaccharide, hormone, toxin and cytokine. The protein is selected from antibody, antibody fragment, avidin, streptavidin, allergen, receptor protein, DNA binding protein, viral antigen, bacterial antigen, eukaryotic antigen, immunoglobulin binding protein and enzyme. The sub-cellular component is ribosome and the entire cell is selected from bacterial and eucaryotic cells. The small organic biomolecule is a hapten, ligand or biologically active molecule. The hapten is a thyroid hormone, steroid, vitamin, antibiotic, enzyme cofactor, therapeutic drug, metabolite, lipid, neurotransmitter or controlled chemical substance.

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Components: Light is emitted on reaction of the **acridinium** compound with hydrogen peroxide, sodium peroxide or bivalent peroxide salts.

ABEX

SPECIFIC COMPOUNDS - 9 Compounds are claimed: e.g. 2',6'-dimethyl-4'-carboxyphenyl 3-(4-hydroxystyrenyl)-10-methyl-**acridinium** -9-carboxylate.

EXAMPLE - N-(3-(1,3-Dioxolyl)phenyl)isatin was prepared then converted in turn to 2-(**acridine**-9-carboxyl)-1,3-dioxolane, **acridine** -9-carboxylic acid-3-carboxaldehyde and 2'6'-dimethyl-4'-benzyloxycarbonylphenyl **acridine**-9-carboxylate-3-carboxaldehyde. 4-Benzyloxybenzyltriphenyl phosphonium chloride was prepared then reacted with 2'6'-dimethyl-4'-benzyloxycarbonylphenyl **acridine** -9-carboxylate-3-carboxaldehyde to give 2'6'-dimethyl-4'-benzyloxycarbonylphenyl 3-(4-benzyloxystyrenyl)-**acridine** -9-carboxylate which was reacted to give 2'6'-dimethyl-4'-benzyloxycarbonylphenyl 3-(4-benzyloxystyrenyl)-10-methyl **acridinium**-9-carboxylate trifluoromethane sulfonate. 2'6'-Dimethyl-4'-benzyloxycarbonylphenyl 3-(4-benzyloxystyrenyl)-10-methyl **acridinium**-9-carboxylate (11 mg.) was stirred in a mixture of dimethyl sulfide (2 ml.) and 30% HBr in acetic acid (1 ml.). After 4 hours at room temperature, ether + hexanes (20 ml.; 1:1) was added and the precipitated solid was collected by filtration and rinsed. The residue was dissolved in methanol and concentrated under reduced pressure. The product was isolated by preparative HPLC and the fraction containing the product was evaporated to dryness to give 2',6'-dimethyl-4'-carboxyphenyl 3-(4-hydroxystyrenyl)-10-methyl-**acridinium**-9-carboxylate (5 mg.; 63%) as a purple solid.

L84 ANSWER 4 OF 7 WPIX (C) 2003 THOMSON DERWENT
AN 1995-373549 [48] WPIX

CR 1990-038667 [06]
DNN N1995-275463 DNC C1995-161831
TI New hydrophilic **acridinium** ester(s) - useful as **chemiluminescent** labels in binding assays esp. for testosterone or rubella virus, with good solubility and low signal to noise ratio.
DC A96 B01 B02 B04 S03
IN CONNOLLY, P B; **JIANG, Q**; KILROY, J P; **LAW, S**; MCCUDDEN, C R; **NATRAJAN, A**; SOTIRIOU-LEVENTIS, C; TIRRELL, S M; CONNOLY, P B
PA (CIBA) CIBA CORNING DIAGNOSTICS CORP; (FARB) BAYER CORP; (CHIR) CHIRON DIAGNOSTICS CORP
CYC 64
PI WO 9527702 A1 19951019 (199548)* EN 71p C07D219-04
RW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ UG
W: AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LT LU LV MD MG MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TT UA US UZ VN
AU 9520816 A 19951030 (199606) C07D219-04
EP 754178 A1 19970122 (199709) EN C07D219-04
R: AT BE CH DE DK ES FR GB IT LI
US 5656426 A 19970812 (199738) 28p C12Q001-68 <--
BR 9507307 A 19970902 (199741) C07D219-04
KR 97702257 A 19970513 (199821) C07D219-06
JP 10503169 W 19980324 (199822) 66p C07D219-04
AU 703436 B 19990325 (199924) C07D219-04
MX 9604646 A1 19980201 (199954) C07D219-04
EP 982298 A1 20000301 (200016) EN C07D219-04
R: AT BE CH DE DK ES FR GB IT LI
EP 754178 B1 20030115 (200306) EN C07D219-04
R: AT BE CH DE DK ES FR GB IT LI
ADT WO 9527702 A1 WO 1995-IB244 19950406; AU 9520816 A AU 1995-20816 19950406; EP 754178 A1 EP 1995-913298 19950406, WO 1995-IB244 19950406; US 5656426 A Cont of US 1988-226639 19880801, Div ex US 1992-826186 19920122, CIP of US 1993-32231 19930317, US 1994-225165 19940408; BR 9507307 A BR 1995-7307 19950406, WO 1995-IB244 19950406; KR 97702257 A WO 1995-IB244 19950406, KR 1996-705658 19961008; JP 10503169 W JP 1995-526216 19950406, WO 1995-IB244 19950406; AU 703436 B AU 1995-20816 19950406; MX 9604646 A1 MX 1996-4646 19961007; EP 982298 A1 Div ex EP 1995-913298 19950406, EP 1999-203889 19950406; EP 754178 B1 EP 1995-913298 19950406, WO 1995-IB244 19950406, Related to EP 1999-203889 19950406
FDT AU 9520816 A Based on WO 9527702; EP 754178 A1 Based on WO 9527702; US 5656426 A Div ex US 5227489, CIP of US 5449556; BR 9507307 A Based on WO 9527702; KR 97702257 A Based on WO 9527702; JP 10503169 W Based on WO 9527702; AU 703436 B Previous Publ. AU 9520816, Based on WO 9527702; EP 982298 A1 Div ex EP 754178; EP 754178 B1 Related to EP 982298, Based on WO 9527702
PRAI US 1994-225165 19940408; US 1988-226639 19880801; US 1992-826186 19920122; US 1993-32231 19930317
REP EP 263657; EP 273115; EP 353971; EP 361817; EP 82636
IC ICM C07D219-04; C07D219-06; **C12Q001-68**
ICS C07J043-00; G01N033-53; G01N033-532; G01N033-533; G01N033-569; G01N033-58
AB WO 9527702 A UPAB: 20030124
**Acridinium** esters of formula (I) are new. R1 = up to 24C alkyl, alkenyl, alkynyl, aryl or aralkyl, opt. with up to 20 heteroatoms (N, O, P or S); R2, R3, R5 and R7 = H, NH2, OH, halo, NO2, CN, SO3H, SCN, R, OR, NHCOR, COR, COOR or CONHR; R = R1; R4, R8 = up to 8C alkyl, alkenyl, alkynyl, aralkyl or alkoxy with no side chains longer than 2C; R6 = R9-R10; R9 = absent or alkyl or aralkyl with up to 5 heteroatoms as above; R10 = electrophile, leaving gp. (or combination of both) or one of -COOQ1, COY, COORa, C(=NH2+)ORaCl-, -NCS, -NCO, N3, halo, COOH or -NHCO-Ra-Q2;Q1 = succinimido, phthalimido, imidazol-1-yl, OCO-ORa, Y or ORa; Ra = alkyl, aryl or aralkyl; Q2 = maleimido or -S-S-(2-pyridyl); Y = halo; the

positions of R5, R6 and R7 on the ring are interchangeable.

Also new are conjugates (C) consisting of (I) coupled (in)directly to another cpd. or macromolecule.

USE - (I) are useful as **chemiluminescent** labels in binding assays (e.g. immunoassays or gene probe assays), most esp. in assays for testosterone or rubella virus, in vivo or in vitro.

ADVANTAGE - (I) are highly soluble in water; have higher quantum yield than known **acridinium** esters; can be encapsulated in liposomes without significant leakage, and provide (C) of good solubility. They provide improved assay sensitivity and speed, and numerous (I) can be attached to a single macromolecule to improve the signal to noise ratio.

Dwg.0/9

FS CPI EPI

FA AB; GI; DCN

MC CPI: A12-V03C2; A12-W11L; B06-D11; B12-K04A
EPI: S03-E14H; S03-E14H4

ABEQ US 5656426 A UPAB: 19970922

An **acridinium** ester of the following formula (I):

wherein

R1 is alkyl, alkenyl, alkynyl, aryl, or aralkyl, having up to 24 carbons and 1 to 20 heteroatoms selected from the group consisting of nitrogen, oxygen, phosphorous and sulfur; and

R2, R3, R5, and R7 are hydrogen, amino, hydroxyl, halide, nitro, -CN, -SO3H, -SCN, -R, -OR, -NHCOR, -COR, -COOR, or -CONHR, wherein

R is alkyl, alkenyl, alkynyl, aryl, or aralkyl, having up to 24 carbons and up to 20 heteroatoms selected from the group consisting of nitrogen, oxygen, phosphorous, and sulfur; and

R4 and R8 are alkyl, alkenyl, alkynyl, aralkyl, or alkoxyl having up to 8 carbons, with no branching wherein the side chain groups have more than 2 carbons; and

R6 represents the following substitutions: R6=R9-R10 wherein

R9 is not required but optionally can be an alkyl, or aralkyl group having up to 5 heteroatoms which can be P, S, N, or O, and

R10 is an electrophile, a leaving group, a group with these two combined natures, or selected from the following structures; -NCO, N3, a halide, -COOH, -COOCOOR, -CO1Y, -COOR, Cl, -N=C=S or other groups

where Y is a halide and R is an alkyl, aryl, or aralkyl group; and where R5, R6, and R7 substituent positions on the phenoxy ring are interchangeable.

Dwg.0/9

L84 ANSWER 5 OF 7 WPIX (C) 2003 THOMSON DERWENT

AN 1994-295895 [37] WPIX

CR 1994-287315 [36]; 1999-203947 [17]

DNN N1994-232774 DNC C1994-134924

TI Simultaneous assay of analytes using different **chemiluminescent** tracers - partic. for immunoassays and hybridisation assays, also new fused ring **acridinium** cpds. and their intermediates.

DC B04 D16 E24 J04 S03

IN FISCHER, W; **JIANG, Q**; KRODEL, E K; **LAW, S**; UNGER, J T

PA (CIBA) CIBA CORNING DIAGNOSTICS CORP; (CIBA) CIBA GEIGY UK LTD; (CIBA) CIBA GEIGY AG; (NOVS) NOVARTIS AG; (FARB) BAYER CORP; (CHIR) CHIRON DIAGNOSTICS CORP

CYC 16

PI EP 617288 A2 19940928 (199437)* EN 81p G01N033-58
R: AT BE CH DE DK ES FR GB IT LI NL
AU 9455018 A 19940922 (199439) C09B015-00
WO 9421823 A1 19940929 (199439) EN 133p C12Q001-68 <--
W: PL
CA 2118891 A 19940920 (199444) C07D221-18
US 5395752 A 19950307 (199515) 50p C12Q001-68 <--

JP 08320319 A 19961203 (199707) 47p G01N033-50
AU 677259 B 19970417 (199723) C09B015-00
US 5702887 A 19971230 (199807) 60p C12Q001-68 <--
EP 617288 B1 20020502 (200230) EN G01N033-58
R: AT BE CH DE DK ES FR GB IT LI NL
DE 69430500 E 20020606 (200245) G01N033-58
ES 2176229 T3 20021201 (200305) G01N033-58

ADT EP 617288 A2 EP 1994-810170 19940318; AU 9455018 A AU 1994-55018 19940210; WO 9421823 A1 WO 1994-US3020 19940318; CA 2118891 A CA 1994-2118891 19940311; US 5395752 A US 1993-35130 19930319; JP 08320319 A JP 1994-50109 19940322; AU 677259 B AU 1994-55018 19940210; US 5702887 A Div ex US 1993-35130 19930319, US 1994-340093 19941114; EP 617288 B1 EP 1994-810170 19940318; DE 69430500 E DE 1994-630500 19940318, EP 1994-810170 19940318; ES 2176229 T3 EP 1994-810170 19940318

FDT AU 677259 B Previous Publ. AU 9455018; US 5702887 A Div ex US 5395752; DE 69430500 E Based on EP 617288; ES 2176229 T3 Based on EP 617288

PRAI US 1993-35341 19930319; US 1993-35130 19930319; US 1994-340093 19941114

REP EP 322926; GB 2233450; US 4683202; US 5110932

IC ICM C07D221-18; C09B015-00; **C12Q001-68**; G01N033-50; G01N033-58
ICS C07D219-04; C07D471-04; C07D491-052; C07D495-04; C07F009-547; C09K011-00; C09K011-06; C12P019-34; G01N021-76; G01N021-78; G01N033-48; G01N033-52; G01N033-53; G01N033-532; G01N033-74

ICA G01N033-76

AB EP 617288 A UPAB: 20030121
Detection and/or quantitation of at least 2 substances (I) comprises simultaneously detecting the spectral emission signals from at least 2 different **chemiluminescent** cpds. (II), each associated with a (I). Also new are (1) method for amplifying target sequences (TS); (2) (II) which upon chemical treatment, emit blue-green, green, yellow, orange or red-orange light;(3) test kits for detecting (I) contg. at least 2 (II) conjugated to analyte-specific binding partners; (4) **benzoacridine** derivs. as luminescent cpds. (5) **benzoacridine** derivs. as intermediates of (4); (6) the intermediate 3-**methoxyacridine** -9-carboxylic acid hydrochloride (III).

USE - The method is useful in industrial and partic. clinical diagnostic assays, partic. immunoassays; homogeneous or heterogeneous hybridisation assays, or amplification assays, for antigens, antibodies or nucleic acid (e.g. oncogenes).

ADVANTAGE - The good sepn. between emissions from different (II) allows a single sample to be used for several tests and emission from all (II) is induced under identical conditions. (II) are stable enough for transport in kit form in aq. soln. Simultaneous assays improve efficiency of automated analysers and reduce costs, and can be performed in a single reaction medium or transfer tube.

Dwg.0/9

FS CPI EPI

FA AB; GI; DCN

MC CPI: B04-B04C1; B04-E01; B04-G01; B06-D11; B11-C07A; B12-K04A; D05-H09; D05-H18B; E06-D11; E06-D18; E11-Q03L; J04-B01
EPI: S03-E14H

ABEQ US 5395752 A UPAB: 19950425
Detecting and/or quantifying at least 2 substances in a test sample comprises (a) providing at least 2 different **chemiluminescent** cpds. and (b) simultaneously detecting the emission signals of the **chemiluminescent** cpds. to detect or quantify the test substances. At least 1 cpd. includes a linear aromatic 4-ring fused **acridinium** cpd. and another cpd. includes an angular aromatic 4-ring fused or 3-ring **acridinium** cpd. Each cpd. has conjugated to it a molecule specific for a test substance in the sample so that a reaction is effected between the conjugated molecule and test substance.

Pref., the method is an immunoassay, hybridisation assay or nucleic acid amplification assay. At least 1 **chemiluminescent** cpd.

includes an N-alkylated **benzacridinium** 4-ring system.
USE - Used to detect cancer, infectious diseases, genetic abnormalities, disposition and assessment and to monitor medical therapy.
Dwg.0/9

ABEQ US 5702887 A UPAB: 19980216
Detection and/or quantitation of at least 2 substances (I) comprises simultaneously detecting the spectral emission signals from at least 2 different **chemiluminescent** cpds. (II), each associated with a (I). Also new are (1) method for amplifying target sequences (TS); (2) (II) which upon chemical treatment, emit blue-green, green, yellow, orange or red-orange light;(3) test kits for detecting (I) contg. at least 2 (II) conjugated to analyte-specific binding partners; (4) **benzoacridine** derivs. as luminescent cpds. (5) **benzoacridine** derivs. as intermediates of (4); (6) the intermediate 3-**methoxyacridine** -9-carboxylic acid hydrochloride (III).
USE - The method is useful in industrial and partic. clinical diagnostic assays, partic. immunoassays; homogeneous or heterogeneous hybridisation assays, or amplification assays, for antigens, antibodies or nucleic acid (e.g. oncogenes).
ADVANTAGE - The good sepn. between emissions from different (II) allows a single sample to be used for several tests and emission from all (II) is induced under identical conditions. (II) are stable enough for transport in kit form in aq. soln. Simultaneous assays improve efficiency of automated analysers and reduce costs, and can be performed in a single reaction medium or transfer tube.
Dwg.0/9

L84 ANSWER 6 OF 7 WPIX (C) 2003 THOMSON DERWENT
AN 1990-038667 [06] WPIX
CR 1995-373549 [48]
DNN N1990-029792 DNC C1990-016884
TI New **acridinium** ester(s) - encapsulated in liposome vesicles for use as tracers in assays for analyte(s) or for labelling ligands.
DC B02 B04 J04 P73 S03
IN **LAW, S**; PIRAN, U; **LAW, S J**; PIRAN, U S
PA (CIBA) CIBA CORNING DIAGNOSTICS CORP; (CHIR) CHIRON DIAGNOSTICS CORP
CYC 11
PI

| | | | | | | |
|---|---|---|---|---|---|---|
| EP 353971 | A | 19900207 (199006)* | EN | 18p | | |
| R: BE DE FR GB IT LU NL | | | | | | |
| AU 8939033 | A | 19900208 (199015) | | | | |
| JP 02096567 | A | 19900409 (199020) | | | | |
| AU 634716 | B | 19930304 (199316) | | | C07D219-06 | |
| AU 9332034 | A | 19930401 (199320) | | | G01N033-532 | |
| US 5227489 | A | 19930713 (199329) | | 13p | C07D219-04 | |
| AU 654754 | B | 19941117 (199502) | | | G01N033-532 | |
| US 5449556 | A | 19950912 (199542) | | 15p | B32B009-02 | |
| EP 353971 | B1 | 19960207 (199610) | EN | 19p | C07D219-04 | |
| R: BE DE FR GB IT LU NL | | | | | | |
| DE 68925603 | E | 19960321 (199617) | | | C07D219-04 | |
| US 5595875 | A | 19970121 (199710) | | 14p | C12Q001-68 | <-- |
| JP 09025422 | A | 19970128 (199714) | | 13p | C09B015-00 | |
| JP 2601347 | B2 | 19970416 (199720) | | 15p | C07D219-04 | |
| US 5656500 | A | 19970812 (199738) | | 13p | G01N033-533 | |
| CA 1339490 | C | 19971007 (199801) | | | C07D219-04 | |
| JP 2822320 | B2 | 19981111 (199850) | | 15p | C09B015-00 | |

ADT EP 353971 A EP 1989-307752 19890731; JP 02096567 A JP 1989-199178 19890731; AU 634716 B AU 1989-39033 19890727; AU 9332034 A AU 1993-32034 19930127, Div ex AU 1989-39033 ; US 5227489 A Cont of US 1988-226639 19880801, US 1992-826186 19920122; AU 654754 B AU 1993-32034 19930127, Div ex AU 1989-39033 ; US 5449556 A Cont of US 1988-226639 19880801, Div ex US 1992-826186 19920122, US 1993-32231 19930317; EP 353971 B1 EP 1989-307752 19890731; DE 68925603 E DE 1989-625603 19890731, EP 1989-307752 19890731; US 5595875 A Cont of US

1988-226639 19880801, Div ex US 1992-826186 19920122, Div ex US 1993-32231 19930317, US 1994-325845 19941019; JP 09025422 A Div ex JP 1989-199178 19890731, JP 1996-179488 19890731; JP 2601347 B2 JP 1989-199178 19890731; US 5656500 A Cont of US 1988-226639 19880801, Div ex US 1992-826186 19920122, Div ex US 1993-32321 19930317, Cont of US 1994-325845 19941019, US 1995-440427 19950512; CA 1339490 C CA 1989-607098 19890731; JP 2822320 B2 Div ex JP 1989-199178 19890731, JP 1996-179488 19890731

FDT AU 634716 B Previous Publ. AU 8939033; AU 654754 B Previous Publ. AU 9332034; US 5449556 A Div ex US 5227489; DE 68925603 E Based on EP 353971; US 5595875 A Div ex US 5227489, Div ex US 5449556; JP 2601347 B2 Previous Publ. JP 02096567; US 5656500 A Div ex US 5227489, Div ex US 5449556, Cont of US 5595875; JP 2822320 B2 Previous Publ. JP 09025422

PRAI US 1988-226639 19880801; US 1992-826186 19920122; US 1993-32231 19930317; US 1994-325845 19941019; US 1993-32321 19930317; US 1995-440427 19950512

REP A3...9041; EP 257541; EP 263657; EP 82636; GB 1461877; No-SR.Pub

IC ICM B32B009-02; C07D219-04; C07D219-06; C09B015-00; **C12Q001-68**; G01N033-532; G01N033-533

ICS C07F009-09; C07F009-38; C07F009-64; C07K015-12; C07K017-02; C09K011-07; G01N033-53; G01N033-544; G01N033-549; G01N033-554; G01N033-573; G01N033-58; G01N033-78

ICA C09K011-06; G01N021-76

AB EP 353971 A UPAB: 19970926

A luminosome is claimed characterised in that it comprises a liposome encapsulating an **acridinium** ester (I). Pref. (I) is of formula (Ia) (R1 = alkyl, alkenyl, alkynyl, aryl or aralkyl which may contain one or more heteratoms; R2.R3,R5,R7 = H, amino, alkoxy, OH, CO2, halide, NO2, CN, SO3, NHC(O)R, C(O)R, C(O)OR, C(O)NHR or SCN; R = as for R1; R4, R8 = H, alkyl, alkenyl, alkynyl, aralkyl or alkoxy; R6 = COOH, -R-In or Q=R-In; Q = O, S, NH, CO, SO3, diazo, NHC(S)NH, NHC(O)NH, NHC(O)O, NHC(O), C(O)NH or NHC(N+H2); I an ionisable gp.; n = an integer at least 1; x = an anion. Also claimed are the acridimum esters of formula (Ia).

USE/ADVANTAGE - The acridium esters have high solubility and are useful as **chemiluminescent** markers and may be encapsulated at high concns. within liposome vesicles without leakages of the esters from the vesicles. The lumisomes can be used as tracers in assays for analytes eg. antibodies, antigens or nucleic acids. The **acridinium** esters can also be used for labelling ligands, analytes, specific binding partners or nucleic acids.

Dwg.0/0

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: B04-B04A1; B04-B04C; B06-D11; B11-C07A5; **B11-C07B4**; B12-K04; B12-M11F; J04-B01B

EPI: S03-E14H4

ABEQ US 5227489 A UPAB: 19931116

**Acridinium** esters of formula (I) are new. In (I), R1 is CH2A; A is H, alkyl, alkenyl, alkynyl, aryl or aralkyl; R1 has up to 24C atoms and up to 20 heteroatoms eg. N, O, P or S. R2, R3, R5, R7 are H, NH2, alkoxy, OH, COOH, halo, NO2, CN, SO3H, NHCOR, COR, COOR, CONHR or SCN; R= as R1, R4, R8 1-8C straight chain alkyl, alkenyl, alkynyl, aralkyl or alkoxy with side chains having upto 2 C atoms. X is an anion; R6 is R-(I)n or QR-(I)n; Q=CO, diazo, NHCSNH, NHCONH, NHCOO, NHCO, CONH, NHC(+NH2)-, O, S, NH or SO3; I is SO3H, OSO3H, OP(OH)2 or OPO(OH)2 and n-1-4. USE/ADVANTAGE - Used for liposome encapsulation to detect an analyte in a fluid. Can be encapsulated without significant leakage.

Dwg.1/5

ABEQ US 5449556 A UPAB: 19951026

Lumisome comprises hydrophilic **acridinium** ester of formula (I). R1 = 1-24C alkyl, alkoyl, alkynyl, and or aralkyl having up to 20 N,O,P in S heteroatoms R2,R3,R5 and R7 = H, amino, alkoxy hydroxyl, -COOH, halide, nitro -CN, -SO3H, -NHCOR, -COR, -COOR, -CONHR or -SCN (R = R1). R4,R8 = alkyl, alkenyl, alkynyl, aralkyl, or alkoxy having up to 8C with no

branching. No side chains within R4 and R8 have more than 2C. X = anion, R6 = -R-Y(n) or -Q-P-Y(n) Q = -O-, -S-, -NH; -CO-, -SO3- diazo, -NHC(=S)NH, -NHCONH-, -NHCOO-, NHCO-, -CONH-, or -NHC(=NH2+)- Y = SO3H, -OSO3H, -PO(OH)2 or PO(OH2), n = 1-4.

USE - (I) are useful for detecting analyte in a fluid sample, and as **chemiluminesced** markes whcih can be encapsulated with liposome vesicles without linkage of the esters.

Dwg.0/5

ABEQ EP 353971 B UPAB: 19960308

A liposome characterised in that it comprises an **acridinium** ester encapsulated therein.

Dwg.0/5

ABEQ US 5595875 A UPAB: 19970307

In an assay for the determn. of an analyte where the assay comprises combining a sample fluid suspected of contg. the analyte with liposomes comprising a label and a ligand, ligand analogue or anti-ligand and then determining the amt. of the label associated with the analyte, the improvement comprising employing lumisomes as the liposomes, said lumisomes contg. **acridinium** esters of formula (I):

R1 = alkyl, alkenyl, alkynyl, aryl, or aralkyl contg. 0-20 heteroatoms;

R2, R3, R5, R7 = H, amino, alkoxyl, hydroxyl, halide, nitro, CN, SO3H, NHCRO, OCR, OCOR, OCNHR, SCN;

R = alkyl, alkenyl, alkynyl, aryl, or aralkyl, contg. 0-20 heteratoms;

R4,R8 = alkyl, alkenyl, alkynyl, aralkyl, or alkoxyl;

X = an anion;

R6 = R-I(n) or Q-R-I(n),

Q = O, S, NH, OC, SO3, diazo, NHSCNH, NHOCNH, NHOCO, NHOC, OCNH or NHC+NH2;

I = an ionizable gp., and

n = at least 1.

Dwg.0/5

ABEQ US 5656500 A UPAB: 19970922

A luminescent conjugate for use in luminescent assays comprising a lumisome coupled to at least one biological molecule selected from the group consisting of ligands, ligand analogues, anti-ligands, analytes and molecules comprising nucleic acids with said lumisome encapsulating the following **acridinium** ester of formula (I):

wherein:

R1 = alkyl, alkenyl, alkynyl, aryl, or aralkyl, containing 0-20 heteroatoms;

R2, R3, R5, R7 = H, N, alkoxy, hydroxy, halide, nitro, CN, SO3H, NHCO1R, CO1R, CO2R, CO1NHR, or SCN;

R = alkyl, alkenyl, alkynyl, aryl, or aralkyl, containing from 0-20 heteroatoms;

R4, R8 = alkyl, alkenyl, alkynyl, aralkyl, or alkoxyl;

X = anion;

R6 = -R-I(a) or Q-R-I(a);

Q = O, S, NH, carbonyl, SO3, diazo, NHSCNH, NHCO1NH, NHCO1O, NHCO1, CO1NH, or NHNH2;

I = an ionizable group;

n = at least 1.

Dwg.0/5

L84 ANSWER 7 OF 7 WPIX (C) 2003 THOMSON DERWENT

AN 1988-100052 [15] WPIX

DNN N1988-075851 DNC C1988-044799

TI New poly-substd. aryl **acridinium** ester(s) - useful as luminescent labels in specific binding assays such as immunoassays or nucleic acid hybridisation assays.

DC B02 B04 J04 S03

IN CHANG, S C S; CUBICCIOTTI, R S; **LAW, S J**; PALMACCI, S A; CUBICCIOTT, R S
PA (CIBA) CIBA CORNING DIAGNOSTICS CORP; (CORN-N) CORNING DIAGNOSTICS CORP
CYC 10
PI EP 263657 A 19880413 (198815)* EN 8p
R: BE DE FR GB IT
US 4745181 A 19880517 (198822) 5p
AU 8779100 A 19880414 (198823)
JP 63101368 A 19880506 (198824)
US 4918192 A 19900417 (199020)
EP 263657 B1 19920513 (199220) EN 11p C07D219-04
R: BE DE FR GB IT
US 5110932 A 19920505 (199221) 7p
DE 3779040 G 19920617 (199226) C07D219-04
JP 07002716 B2 19950118 (199507) 7p C07D219-04
ADT EP 263657 A EP 1987-308793 19871005; US 4745181 A US 1986-915527 19861006; JP 63101368 A JP 1987-252301 19871006; US 4918192 A US 1987-133792 19871214; EP 263657 B1 EP 1987-308793 19871005; US 5110932 A US 1986-915527 19861006; DE 3779040 G DE 1987-3779040 19871005, EP 1987-308793 19871005; JP 07002716 B2 JP 1987-252301 19871006
FDT US 5110932 A Div ex US 4745181, Cont of US 4918192; DE 3779040 G Based on EP 263657; JP 07002716 B2 Based on JP 63101368
PRAI US 1986-915527 19861006
REP 2.Jnl.Ref; A3...8848; EP 82636; GB 1461877; No-SR.Pub; EP 216553; EP 257541
IC ICM C07D219-04
ICS C07D401-12; C07H005-04; C07H015-12; C07H019-06; C07K015-14; C09K011-06; C09K011-07; **C12Q001-68**; G01N021-76; G01N021-78; G01N033-53; G01N033-532; G01N033-533
AB EP 263657 A UPAB: 19930923
A luminescent cpd. comprising a polysubstd. aryl **acridinium** ester of formula (I) is claimed. In (I), R1 = alkyl, alkenyl, alkynyl or aryl; R2, R3, R5, R7 = H, amino, carboxyl, OH, alkoxy, NO2 or halide, R4, R8 = alkyl, alkenyl, alkynyl, aryl, alkoxy, amino, amido, sulphonamido or sulphide; R6 = -R9-R10; R9 may not be present or is alkyl, or ar(alk)yl; R10=II-VIII, -COOCOR,. -COX, -COOR, -N=C=S, -N=C=O, N2(+)x(-), halide, N3, -COOH, -OSO2F, -OSO2CF3,-OSO2C4F9, or -NH2; X = CH3SO4, OSO2F, halide, OSO2CF3, OSO2C4F9 or a gp. (IX); R = alkyl, aryl or aralkyl; R5, R6 and R7 substd. positions on the phenoxy ring are interchangeable.
USE/ADVANTAGE - (I) are useful as luminescent labels in specific binding assays such as immunoassays or nucleic acid hybridisation assays. As a result of the substits. on the ortho positions of the phenoxy ring, the cpds. and luminescent labelled conjugates have better stability in pH7.4 buffer media, a 3-fold increase in light emitting efficiency when configured as a conjugate and a 2-fold improvement in the signal-to-noise ratio when used in a solid phase specific binding assay.
0/1
FS CPI EPI
FA AB; GI; DCN
MC CPI: B04-B04A1; B06-D11; B11-C07A5; B12-K04A; J04-B01
EPI: S03-E14H4
ABEQ DE 3779040 G UPAB: 19930923
A luminescent cpd. comprising a polysubstd. aryl **acridinium** ester of formula (I) is claimed. In (I), R1 = alkyl, alkenyl, alkynyl or aryl; R2, R3, R5, R7 = H, amino, carboxyl, OH, alkoxy, NO2 or halide, R4, R8 = alkyl, alkenyl, alkynyl, aryl, alkoxy, amino, amido, sulphonamido or sulphide; R6 = -R9-R10; R9 may not be present or is alkyl, or ar(alk)yl; R10=II-VIII, -COOCOR,. -COX, -COOR, -N=C=S, -N=C=O, N2(+)x(-), halide, N3, -COOH, -OSO2F, -OSO2CF3,-OSO2C4F9, or -NH2; X = CH3SO4, OSO2F, halide, OSO2CF3, OSO2C4F9 or a gp. (IX); R = alkyl, aryl or aralkyl; R5, R6 and R7 substd. positions on the phenoxy ring are interchangeable.
USE/ADVANTAGE - (I) are useful as luminescent labels in specific binding assays such as immunoassays or nucleic acid hybridisation assays.

As a result of the substits. on the ortho positions of the phenoxy ring, the cpds. and luminescent labelled conjugates have better stability in pH7.4 buffer media, a 3-fold increase in light emitting efficiency when configured as a conjugate and a 2-fold improvement in the signal-to-noise ratio when used in a solid phase specific binding assay.

ABEQ EP 263657 B UPAB: 19930923

A luminescent compound characterised in that it comprises a polysubstituted aryl **acridinium** ester having structure of formula (I) wherein R1 represents alkyl, alkenyl, alkynyl or aryl; R2, R3, R5 or R7 represents hydrogen, amino carboxyl, hydroxyl, alkoxyl, nitro or halide; at least one or R5, R6 or R7 representing -R9 -R10 where R9 is not required, but optionally may represent alkyl, aryl or aralkyl; and R10 is selected from gps. of formulae (II) - (XI) or - N = C = S , - N = C = O, - N2+X, halide, -N3, -COOH-, - OSO2F, -OSO2CF3, -OSO2C4F4, X represents CH3SO4-, OSO2F-, halide, OSO2CF3-, OSO2C4F9-, or gp (XII) R represents alkyl, aryl or aralkyl; and R4 or R8 represents alkyl, alkenyl, alkynyl, aryl, alkoxyl, amino, amido, sulfonamido or sulfide.

ABEQ US 4745181 A UPAB: 19930923

Luminescent conjugate comprises a novel polysubstd. aryl **acridinum** ester of formula (I). In the formula, R1 is alkyl, alkoxy, alkynyl or aryl; R2, 3, 5 and 7 are H, amino, carboxy, OH, alkoxy, nitro or halo; R4 and 8 are alkyl, alkenyl, alknyl, aryl, alkoxy, amino, amido, sulphonamido or sulphide; R6' is alkyl, aryl or aralkyl or a direct bond; R6 is CO-X, CO-O-CO-R, COOR, C(OR)=NHX, NCS, NCO, N2.X, halide, N3, COOH, OSO2F, OSO2CF3, OSO2C4F9, NH2, -OSO2-p-C6H4-CH3 or e.g. a gp. of formula (II) or (III), etc. X is CH3SO4, OSO2F, halide, OSO2CF3, OSO2C4F9 or OSO2-p-C6H4-CH3, R is alkyl, aryl or aralkyl. R6'-R6 is covalently coupled to a molecule with biological activity. Positions of R5, R6'-R6 are R7 are interchangeable.

USE/ADVANTAGE - As labels for **chemiluminescent** immunoassays. The conjugate has high stability in pH 7.4 buffer media, three fold increase in light emitting efficiency when configured as the conjugate and two-fold improvement in signal-to-noise ratio.

ABEQ US 4918192 A UPAB: 19930923

Luminescent cpd. comprises a poly-substd. aryl **acridinium** ester of formula (I); in which R1 is alkyl, alkenyl, alkynyl, or aryl; R2, R3, R5 or R7 are H, amino, carboxyl, OH, alkoxy, NO2 or halid; R4 or R8 are alkyl; R6 is R9-R10 in which R9 is not required but, if present, is alkyl, aryl, or aralkyl and R10 is -C(=O)-O-C(=O)-R, -C(=O)-OR, -C(=NH2+X-)-OR, -N=C=S, -N=C=O, -N2+X-, a halide, -N3, -C(=O)-OH, -OSO2F, -OSO2CF3, -OSO2C4H9, -NH2, or a gp. of formula II to VII X is CH3SO4-, OSO2F-, a halide, OSO2CF3-, OSO2C4F9- or a gp. of formula VIII. R is alkyl, aryl or aralkyl; and R5, R6 and R7 substituent positions on the phenoxy ring are interchangeable.

USE/ADVANTAGE - Cpds. (I) are stable labels for **chemiluminescentt** immune assay.

ABEQ US 5110932 A UPAB: 19930923

9-(Phenoxycarbonyl)**acridinium** salts of formula (I) are new. In (I), R1 is alkyl, alkenyl, alkinyl or aryl; R2, R3, R5 and R7 are each H, NH2, COOH, OH, alkoxy, NO2 or halogen; R4 and R8 ar each alkoxy; R6 is -AR, where A is alkylene, arylene or arylalkylene and R is an ester gp., NCO, NCS, -(N2)+X-, halogen, azide, COOH, OSO2F, OSO2CF3, NH2, etc; and X- is halide, methosulphate, OSO2F, etc.

USE - Cpds. (I) are chemoluminescent markers for labelling antigens, antibodies, enzymes or enzyme substrates, etc., for immunoanlysis.

=> fil dpci
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FILE LAST UPDATED: 5 FEB 2003 <20030205/UP>
PATENTS CITATION INDEX, COVERS 1973 TO DATE

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L85 ANSWER 1 OF 1 DPCI (C) 2003 THOMSON DERWENT
AN 2001-182973 [18] DPCI
DNC C2001-054654
TI New chemiluminescent substrates of hydrolytic enzymes comprising e.g. acridinium compounds, useful in qualitative and quantitative detection of hydrolases in diagnostic assays e.g. immunoassays, nucleic acid assays or receptor assays.
DC B04 D16 E11 E13
IN JIANG, Q; LAW, S; NATRAJAN, A; SHARPE, D J; WONG, W
PA (FARB) BAYER CORP
CYC 95
PI WO 2001009372 A1 20010208 (200118)* EN 119p C12Q001-42
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2000063819 A 20010219 (200129) C12Q001-42
EP 1203091 A1 20020508 (200238) EN C12Q001-42
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
ADT WO 2001009372 A1 WO 2000-US20429 20000727; AU 2000063819 A AU 2000-63819 20000727; EP 1203091 A1 EP 2000-950764 20000727, WO 2000-US20429 20000727
FDT AU 2000063819 A Based on WO 200109372; EP 1203091 A1 Based on WO 200109372
PRAI **US 1999-146648P 19990730**
IC ICM C12Q001-42
ICS C07D219-06
FS CPI

CTCS CITATION COUNTERS

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|---|---|---|
| PNC.DI | 0 | Cited Patents Count (by inventor) |
| PNC.DX | 6 | Cited Patents Count (by examiner) |
| IAC.DI | 0 | Cited Issuing Authority Count (by inventor) |
| IAC.DX | 2 | Cited Issuing Authority Count (by examiner) |
| PNC.GI | 0 | Citing Patents Count (by inventor) |
| PNC.GX | 0 | Citing Patents Count (by examiner) |
| IAC.GI | 0 | Citing Issuing Authority Count (by inventor) |
| IAC.GX | 0 | Citing Issuing Authority Count (by examiner) |
| CRC.I | 0 | Cited Literature References Count (by inventor) |
| CRC.X | 1 | Cited Literature References Count (by examiner) |

CDP CITED PATENTS UPD: 20020624

Cited by Examiner

| CITING PATENT | CAT | CITED PATENT | ACCNO |
|---|---|---|---|
| WO 200109372 | A | US 4745181 A | 1988-100052/15 |
| | PA: | (CIBA) CIBA CORNING DIAGNOSTICS CORP; (CORN-N) CORNING DIAGNOSTICS CORP | |
| | IN: | CHANG, S C S; CUBICCIOTTI, R S; LAW, S J; PALMACCI, S | |

A; CUBICCIOTT, R S
Y US 4810636 A 1988-162989/24
PA: (MILE) MILES INC
IN: COREY, P F
Y US 5656426 A 1995-373549/48
PA: (CIBA) CIBA CORNING DIAGNOSTICS CORP; (CHIR) CHIRON DIAGNOSTICS CORP
IN: CONNOLLY, P B; JIANG, Q; KILROY, J P; LAW, S; MCCUDDEN, C R; NATRAJAN, A; SOTIRIOU-LEVENTIS, C; TIRRELL, S M; CONNOLY, P B
US 5772926 A 1998-386914/33
PA: (LUMI-N) LUMIGEN INC
IN: AKHAVAN-TAFTI, H
WO 9402486 A 1994-048772/06
PA: (BEHW) BEHRINGWERKE AG; (SYNT) SYNTEX USA INC; (DADE-N) DADE BEHRING MARBURG GMBH
IN: MENEGHINE, F; SINGH, R; SINGH, S; ULLMAN, E F; MENEGHINI, F
WO 200009487 A1 2000-224255/19
PA: (FARB) BAYER CORP
IN: JIANG, Q; LAW, S; NATRAJAN, A; SHARPE, D

REN LITERATURE CITATIONS UPR: 20020624

Citations by Examiner

| CITING PATENT | CAT | CITED LITERATURE |
|---|---|---|
| WO 200109372 A | | RENAULT, JEAN; GIORGI-RENAULT, SYLVIANE; MAILLIET, PATRICK; BARON, MICHEL; PAOLETTI, CLAUDE; CROS, SUZANNE: "Heterocycles a fonction quinone. I. Acridinediones-1,4 a action antitumorale potentielle" EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY - CHIMICA THERAPEUTICA, vol. 16, no. 1, January 1981 (1981-01) - February 1981 (1981-02), pages 24-34, XP002155669 |

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MOST RECENT DERWENT UPDATE: 200311 <200311/DW>
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L87 ANSWER 1 OF 3 WPIX (C) 2003 THOMSON DERWENT
AN 1998-386914 [33] WPIX
CR 1999-034145 [03]
DNC C1998-116893
TI Generation of chemiluminescence - by reacting dihydroxyaromatic and heterocyclic enol phosphate in the presence of oxygen; useful in assays of hydrolytic enzymes and inhibitors.
DC B02 B04 D16
IN AKHAVAN-TAFTI, H
PA (LUMI-N) LUMIGEN INC
CYC 1
PI US 5772926 A 19980630 (199833)* 32p C09K003-00 <--
ADT US 5772926 A US 1997-855421 19970513
PRAI US 1997-855421 19970513
IC ICM C09K003-00
ICS C12Q001-00
AB US 5772926 A UPAB: 19990122
Generation of chemiluminescence comprises reacting, in the presence of oxygen: (a) dihydroxyaromatic compound that comprises 1-5 carbocyclic aromatic rings and is substituted with two hydroxy groups separated by an even number of ring C atoms; and (b) heterocyclic enol phosphate of formula (I): R10, R19 = organic group containing up to 50 non-H atoms chosen from C, N, O, S, P and halo; R11-R18 = H, optionally substituted alkyl, optionally substituted aryl, optionally substituted aralkyl, alkenyl, alkynyl, alkoxy, aryloxy, halo, optionally substituted amino, carboxyl, carboalkoxy, carboxamide, cyano and sulphonate, or pairs of adjacent groups may complete a benzo-fused ring; Z = O or S; M = H or cationic centre; and n = number satisfying electroneutrality, provided that any of R11-R18 or a substituent on R10-R19 may be -A-Q; A = spacer group chosen from 1-10C alkylene or 2-10C oxyalkylene; Q = linking group capable of forming a covalent bond chosen from H, diazo, NCO, NCS, CHO, acid anhydride, oxiranyl, succinimidoxycarbonyl, maleimide, cyano, triazole, tetrazole, hydroxyl, COOH, thiol, or primary or secondary amino.
USE - The method is used to generate chemiluminescence, optionally in the presence of a hydrolytic enzyme and to conduct assays of analytes (claimed). The method is useful in assays of hydrolytic enzymes and enzyme inhibitors and in assays employing labelled specific binding pairs including immunoassays and nucleic acid probe assays. The method may be useful in the detection of hydrolytic enzymes such as alkaline phosphatase and beta -galactosidase, when used as markers or labels in enzyme-linked assays for biological molecules and other analytes such as drugs, hormones, steroids and cancer markers, and when used diagnostically in human and veterinary medicine. They may also be useful in chemical light sources and in detecting compounds in samples in biomedical analysis, food analysis and environmental analysis of pollutants.
ADVANTAGE - Chemiluminescent detection provides a safe, convenient and sensitive means to provide a quantitative measure of the amount of enzyme in a sample or of the amount of an enzyme labelled analyte or labelled specific bind partner for an analyte. Methods are sensitive without requiring additional enzymes or auxiliary reagents in addition to

the enzyme substrate.
Dwg.0/8
FS CPI
FA AB; GI; DCN
MC CPI: B04-L01; B05-B01M; B10-B01A; B10-B02A; B10-B03; B10-D01; B10-E02; B11-C07B4; B11-C08E3; B12-K04; D05-H09

L87 ANSWER 2 OF 3 WPIX (C) 2003 THOMSON DERWENT
AN 1994-048772 [06] WPIX
DNN N1994-038361 DNC C1994-022060
TI New chemiluminescent cpds. - comprising spiro acridine derivs. or related cpds. useful as labels in specific binding assays..
DC B02 B04 S03
IN MENEGHINE, F; SINGH, R; SINGH, S; ULLMAN, E F; MENEGHINI, F
PA (BEHW) BEHRINGWERKE AG; (SYNT) SYNTEX USA INC; (DADE-N) DADE BEHRING MARBURG GMBH
CYC 20
PI WO 9402486 A1 19940203 (199406)* 56p C07D498-10 <--
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: CA JP
EP 651752 A1 19950510 (199523) EN C07D498-10
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
JP 07509245 W 19951012 (199549) 19p C07D471-20
US 5545834 A 19960813 (199638) 25p C07D498-10
US 5672478 A 19970930 (199745) 26p C12Q001-68
US 5936070 A 19990810 (199938) G01N033-531
US 6002000 A 19991214 (200005) C07D498-10
ADT WO 9402486 A1 WO 1993-US6636 19930719; EP 651752 A1 EP 1993-917182 19930719, WO 1993-US6636 19930719; JP 07509245 W WO 1993-US6636 19930719, JP 1994-504547 19930719; US 5545834 A Cont of US 1992-916453 19920720, US 1995-373678 19950117; US 5672478 A Cont of US 1992-916453 19920720, Div ex US 1995-373678 19950117, US 1996-661846 19960611; US 5936070 A Cont of US 1992-916453 19920720, Div ex US 1995-373678 19950117, US 1996-664269 19960611; US 6002000 A Cont of US 1992-916453 19920720, Div ex US 1995-373678 19950117, US 1996-661849 19960611
FDT EP 651752 A1 Based on WO 9402486; JP 07509245 W Based on WO 9402486; US 5672478 A Div ex US 5545834; US 5936070 A Div ex US 5545834; US 6002000 A Div ex US 5545834
PRAI US 1992-916453 19920720; US 1995-373678 19950117; US 1996-661846 19960611; US 1996-664269 19960611; US 1996-661849 19960611
REP EP 322926
IC ICM C07D471-20; C07D498-10; C12Q001-68; G01N033-531
ICS C07D471-10; C07D491-10; C07D491-113; C07D513-10; C07D517-10; C07H021-04; C09K011-06; C12M001-00; G01N021-78; G01N033-566; G01N033-576; G01N033-58; G01N033-76
ICI C07D221:00, C07D265:00, C07D498-10; C07D221:00, C07D319:00, C07D491-10; C07D221:00, C07D241:00, C07D471-10; C07D221:00, C07D265:00, C07D498-10; C07D221:00, C07D319:00, C07D491-10; C07D221:00, C07D241:00, C07D471-10
AB WO 9402486 A UPAB: 19960315
Chemiluminescent cpds. of formula (I) are new, X, Y = O,S, Se or NH; Z = a chain of 1-5 atoms 0-8 H atoms in (I) may be replaced by gps. comprising 1-50 atoms other than H; 0-4 of the aromatic C atoms in (I) may be replaced by N; 0-1 H atoms in (I) may be replaced by an organic radical. $

Also claimed are conjugates of formula A-L-Q (II), where A = a cpd. (I), L = a linking gp. and Q = H or an sbp member (sbp = specific binding pair). $

Also claimed is a method for determining an analyte, comprising: (a) combining a test sample with a labelled reagent comprising a 1st sbp member associated with a cpd. (I), where the 1st sbp member is capable of binding to the analyte or to a 2nd sbp member capable of binding to the analyte; (b) chemically activating the cpd. (I); and (c) detecting the amt. of luminescence generated. $

USE - The method may be used to determine e.g. proteins, nucleic acids and polysaccharides.
Dwg.1/5
Dwg.1/5
FS CPI EPI
FA AB; GI
MC CPI: B04-C02; B04-E01; B04-N02; B05-B01D; B05-C08; B06-D11; B11-C07B4; B12-K04A
EPI: S03-E04E; S03-E14H; S03-E14H5
ABEQ US 5545834 A UPAB: 19960924
A compound of the formula (I):
wherein: X is NH and Y is independently selected from the group consisting of O and S; and Z is a chain, 2 atoms in length, which atoms are part of a benzene ring; where 0 to 8 hydrogens of said compound may be replaced by a W where each W is an alkyl, alkylidine, aryl, aralkyl, or an alkyl, awl or aralkyl substituted with one or more radicals of functional groups, wherein said functional groups are independently selected from the group consisting of carboxylic acids, alcohols, thiols, carboxamides, carbamates, carboxylic acid esters, sulphonic acids, sulphonic acid esters, phosphoric acids, phosphoric acid esters, ureas, phosphoramides, sulphonamides, ethers, sulphides, thioethers, olefins, acetylenes, amines, ketones, aldehydes, nitriles, and halogens.
Dwg.0/5
ABEQ US 5672478 A UPAB: 19971113
Method for determining an analyte comprises: (a) combining in a liquid medium: (1) a sample suspected of containing the analyte, (2) a chemiluminescent compound having the formula (I):
X' and Y' = O, S, Se, NH, NR', NSO2R' and NCOR', where R'= alkyl, aryl and halogenated alkyl; Z' = a 1-2 C atoms which link X' and Y'; one or more H of Y' and Z' may be replaced by organic radicals which may be taken together to form rings or double bonds; and (3) chemical means for chemically activating the chemiluminescent compound to produce luminescence; and (b) detecting the amount of luminescence generated by the chemiluminescent compound, the amount of it being related to the amount of analyte in the sample.
Dwg.0/5

L87 ANSWER 3 OF 3 WPIX (C) 2003 THOMSON DERWENT
AN 1988-162989 [24] WPIX
CR 1991-355818 [49]
DNC C1988-072584
TI Chromogenic acridinone enzyme substrates - having gp. cleaved by specific enzyme to give chromogen having greater absorbence max..
DC B02 B04 D16
IN COREY, P F
PA (MILE) MILES INC
CYC 22
PI EP 270946 A 19880615 (198824)* EN 70p
R: AT BE CH DE ES FR GB IT LI LU NL SE
AU 8782060 A 19880609 (198831)
NO 8705008 A 19880704 (198832)
DK 8706438 A 19880610 (198834)
ZA 8709223 A 19880609 (198840)
US 4810636 A 19890307 (198912) 22p <--
JP 01131192 A 19890524 (198927)
EP 270946 B1 19920513 (199220) EN 31p C07D219-06
R: AT BE CH DE ES FR GB IT LI LU NL SE
IL 84666 A 19920216 (199220) C07H017-02
DE 3779066 G 19920617 (199226) C07D219-06
CA 1303611 C 19920616 (199230) FR C07D219-06
ES 2039225 T3 19930916 (199342) C07D219-06
NO 175308 B 19940620 (199428) C07D219-06
JP 06062569 B2 19940817 (199431) 23p C07D219-06

ADT EP 270946 A EP 1987-117548 19871127; ZA 8709223 A ZA 1987-9223 19871208; US 4810636 A US 1987-123537 19871120; JP 01131192 A JP 1987-308813 19871208; EP 270946 B1 EP 1991-113550 ; IL 84666 A IL 1987-84666 19871201; DE 3779066 G DE 1987-3779066 19871127, EP 1987-117548 19871127; CA 1303611 C CA 1987-552712 19871125; ES 2039225 T3 EP 1987-117548 19871127; NO 175308 B NO 1987-5008 19871201; JP 06062569 B2 JP 1987-308813 19871208

FDT DE 3779066 G Based on EP 270946; ES 2039225 T3 Based on EP 270946; NO 175308 B Previous Publ. NO 8705008; JP 06062569 B2 Based on JP 01131192

PRAI US 1986-939855 19861209; US 1987-123537 19871120

REP 2.Jnl.Ref; A3...8839; EP 156347; EP 157384; No-SR.Pub; US 3378463

IC ICM C07D219-06; C07H017-02
ICS C07D211-20; C07D221-20; C07F009-64; C07H015-26; C08B037-00; C12Q001-34; C12Q001-54; G01N033-573

AB EP 270946 A UPAB: 19940907
A chromogenic enzyme substrate cpd. of formula (I) or (II) is new. Y = an enzymatically-cleavable gp.; R, R1 = alkyl or aryl or together form a cyclohexadienone or hydroxycyclohexyl residue; more specifically, the enzymatically-cleavable gp. is a radical of a cpd. Y-OH comprising an enzyme-specific moiety selected from sugars (e.g. alpha-D-galactose) and derivs., aliphatic and aromatic carboxylic acid gps., phosphoric acid and sulphuric acid.

Also claimed is an acridinone chromagen of formula (III) or (IV), where R R1 = alkyl or aryl; X = halo.

USE/ADVANTAGE - When the enzymatically-cleavable gp. Y is cleaved by a specific enzyme in a basic soln., a deprotonated form of the chromagen is liberated having an absorbance maximum which is greater than the substrate cpd.The distinct change in absorbance provides a readily observable and detectable optical signal which can be accurately measured and correlated to the amt. of enzyme present in a liquid test sample.
Dwg.0/4
Dwg.0/4

FS CPI

FA AB; DCN

MC CPI: B04-B02C; B05-B01M; B06-D11; B11-C07B2; B12-K04A; D05-A02; D05-H09

ABEQ DE 3779066 G UPAB: 19930923
A chromogenic enzyme substrate cpd. of formula (I) or (II) is new. Y = an enzymatically-cleavable gp.; R, R1 = alkyl or aryl or together form a cyclohexadienone or hydroxycyclohexyl residue; more specifically, the enzymatically-cleavable gp. is a radical of a cpd. Y-OH comprising an enzyme-specific moiety selected from sugars (e.g. alpha-D-galactose) and derivs., aliphatic and aromatic carboxylic acid gps., phosphoric acid and sulphuric acid.

Also claimed is an acridinone chromagen of formula (III) or (IV), where R R1 = alkyl or aryl; X = halo.

USE/ADVANTAGE - When the enzymatically-cleavable gp. Y is cleaved by a specific enzyme in a basic soln., a deprotonated form of the chromagen is liberated having an absorbence maximum which is greater than the substrate cpd.The distinct change in absorbence provides a readily observable and detectable optical signal which can be accurately measured and correlated to the amt. of enzyme present in a liquid test sample.

ABEQ EP 270946 B UPAB: 19930923
A chromogenic enzyme substrate compound characterised by the formula (I) or (II) wherein Y represents an enzymatically-cleavable radical of a compound Y-OH comprising a sugar or a sugar derivative or a phosphate group, and R and R1, which can be the same or different, are alkyl containing from 1 to 6 carbon atoms, phenyl, naphthyl or together form a cyclohexa-2,5-diene-4-one or 4-hydroxycyclohexyl residue.

ABEQ US 4810636 A UPAB: 19930923
Novel chromogenic enzyme substrate cpd. has formula (I) or (II), where Y is an enzymatically-cleavable gp.; and R and R' are each alkyl or aryl, or together form a cyclohexadienone or Enzymatically-cleavable gp. comprises Y-OH which is an enzyme-specific sugar deriv. e.g alpha-D-galactose,

beta-D-galactose, alpha-D-glucose, beta-D-glucose, alpha-D-mannose, N-acetylglucosamine, or N-acetylneuraminic acid.

USE/ADVANTAGE - Liberated chromogen has absorbence max. in basic soln. more than that of acridinone, enabling accurate measurement and correlation to amt. of enzyme in liq. test sample.

=> d his

(FILE 'HOME' ENTERED AT 14:41:55 ON 16 FEB 2003)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 14:42:12 ON 16 FEB 2003
E BAYER/PA,CS
L1 42961 S E3,E4
E JIANG Q/AU
L2 223 S E3-E14
E JIANG QING/AU
L3 152 S E3,E8
L4 31 S E29
E NATRAJAN A/AU
L5 21 S E3,E4
E SHARPE D/AU
L6 8 S E3,E7
L7 7 S E15,E19
E WONG W/AU
L8 433 S E3-E38
E WONG WEN/AU
L9 1 S E7
E LAW S/AU
L10 25 S E3,E13
L11 38 S E30
L12 6 S L1 AND L2-L11
E CHEMILUMINES/CT
E E4+ALL
E E2+ALL
L13 7747 S E5,E4+NT
E E3+ALL
L14 196317 S E3+NT
L15 36 S L2-L11 AND L13,L14
L16 329 S L13 AND ENZYM?/SC,SX,CW
L17 2 S L15 AND L16
L18 46 S LUMI (S) (M OR P)
L19 1 S L18 AND ENZYM?/SC,SX,CW,BI
L20 1 S L18 AND (BIOCHEM?(L)METHOD?)/SC,SX
L21 2 S L17,L19,L20
L22 2 S L12 AND L21
L23 4 S L12 NOT L22
L24 5 S L13 AND L15
L25 2 S L24 AND L23
L26 7 S L22-L25,L12 AND L1-L25
L27 6 S L26 AND ?LUMINESC?
L28 1 S L26 NOT L27
L29 6 S L27 AND L1-L27
L30 26267 S L13 OR CHEMILUMINESC?
L31 3464 S L30 AND ENZYM?/SC,SX,CW,BI
L32 17 S L31 AND HYDROLYT?
SEL DN AN 1 5 14 15
L33 13 S L32 NOT E1-E12
SEL DN AN L32 15
L34 1 S E13-E15
L35 19 S L33,L34,L29 AND L1-L34
L36 11 S L35 AND LIGHT

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L37          19 S L35,L36
L38        1383 S L31 AND (BIOCHEM?(L)METHOD?)/SC,SX
L39          23 S L38 AND BINDING PAIR
L40         228 S L38 AND (LIGHT OR WAVELENGHT)
L41         185 S L38 AND ?COMPLEX?
L42          37 S L40 AND L39,L41
L43          50 S L37,L42
L44          10 S L39 NOT L43
                SEL DN AN 1-3 6-10
L45           2 S L44 NOT E16-E39
L46          44 S L43,L45 AND (PD<=19990730 OR PRD<=19990730 OR AD<=19990730)
L47          46 S L29,L46
L48          40 S L47 NOT L2-L11
                SEL DN AN 6 8 10 12 19 20 21 25 26 27 28 29 30 32 34 36 40
L49          23 S L48 NOT E40-E90
L50          14 S L49 AND BIND?
L51          13 S L50 NOT ARRAY/TI
L52          19 S L29,L51
L53          10 S L49 NOT L52
                SEL DN AN 3 5 7 9
L54           4 S L53 AND E91-E102
L55          23 S L52,L54 AND L1-L54
L56          16 S L55 AND (PAIR? OR PARTNER?)
L57           3 S L55 AND DUAL?
L58          17 S L56,L57
L59           6 S L55 NOT L58
L60           3 S L58,L59 AND SUBSTRATE
L61          23 S L58-L60

     FILE 'HCAPLUS' ENTERED AT 15:15:13 ON 16 FEB 2003

     FILE 'WPIX' ENTERED AT 15:15:25 ON 16 FEB 2003
                E US99-146648/AP,PRN
L62           1 S E5
L63       43618 S C12Q001/IC,ICM,ICS
L64         871 S L63 AND (?CHEMILUMINESC? OR ?CHEMI LUMINESC?)/BIX
L65        1280 S L63 AND (G04-A OR B11-C07B4 OR C11-C07B4 OR S03-E04E)/MC
L66        1800 S L64,L65
L67           2 S L66 AND LUMI/BIX
L68         859 S L66 AND Q505/M0,M1,M2,M3,M4,M5,M6
L69        1503 S L66 AND Q233/M0,M1,M2,M3,M4,M5,M6
L70         787 S L68 AND L69
L71         776 S P831/M0,M1,M2,M3,M4,M5,M6 AND L70
L72         213 S L71 AND SUBSTRATE/BIX
L73           4 S L72 AND HYDROLYT?
L74           4 S L62,L73

     FILE 'WPIX' ENTERED AT 15:29:04 ON 16 FEB 2003
                E JIANG Q/AU
L75         116 S E3,E4
                E NATRAJAN A/AU
L76           5 S E3
                E SHARPE D/AU
L77          11 S E3,E6
                E WONG W/AU
L78         258 S E3-E33
                E LAW S/AU
L79          32 S E3,E7
L80          18 S L75-L79 AND L63-L66
L81           8 S L80 AND ?ACRIDIN?/BIX
L82          10 S L80 NOT L81
L83          11 S L74,L81 AND L62-L82
L84           7 S L83 NOT L74
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     FILE 'DPCI' ENTERED AT 15:36:12 ON 16 FEB 2003
                 E US99-146648/AP,PRN
L85              1 S E5

     FILE 'DPCI' ENTERED AT 15:36:31 ON 16 FEB 2003

     FILE 'WPIX' ENTERED AT 15:37:37 ON 16 FEB 2003
L86              5 S (US5656426 OR US5772926 OR WO9402486 OR WO20009487 OR US48106
L87              3 S L86 NOT L74,L84

     FILE 'WPIX' ENTERED AT 15:38:55 ON 16 FEB 2003

     FILE 'HCAPLUS' ENTERED AT 15:39:06 ON 16 FEB 2003
                 E WO20009487/PN
                 E WO2000-9487/AP,PRN
                 E MENEGHINE F/AU
L88              1 S E4
                   SET COST ON
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